# TEXTILE BULLETIN

30th ANNIVERSARY AND EXPOSITION NUMBER

VOL. 60 March 15, 1941 No. 2





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● Be sure to stop at Space 472 in the Annex, at the Southern Textile Exposition this month and examine these five new ball bearings designed by New Departure, especially for textile machines—a further evidence of New Departure's creative engineering.

They are, left to right, two horizontal tension pulley bearings, two vertical tension pulley bearings with their own oil circulating system and a lubricated-for-life treadle roll bearing.

If you cannot be at Greenville, write us for details.

New Departure, Bristol, Connecticut. Charlotte, Philadelphia and Boston.

# NEW DEPARTURE

## PIONEER OF THE SELF-SEALED BEARING

2977

All wires seat square, flat and firmly into the Foundation.

All wires are parallel.

All wires are even in length.

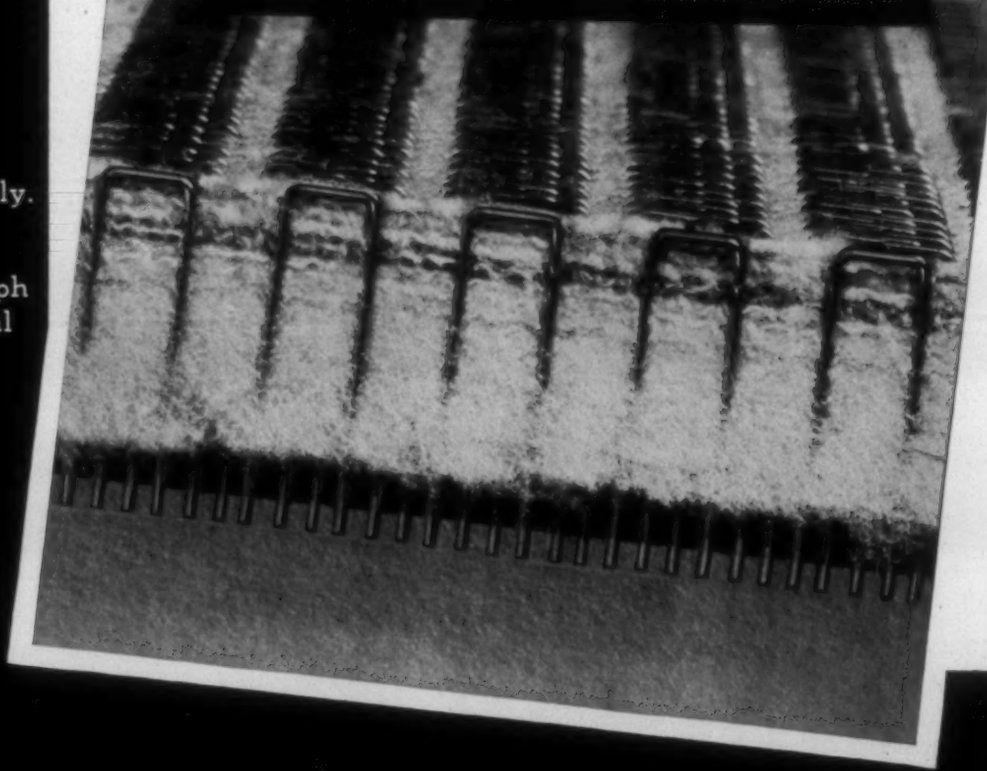
All wires are spaced uniformly.

Microphotograph is 5 times actual size.

# TUFFERIZED Card Clothing

(U. S. PATENT NO. 2,174,17-)

## An Exclusive Howard Bros. Patented-Precision-Process



TRADE MARK
TUFFER
REG. U.S. PAT. OFF.
CARD CLOTHING

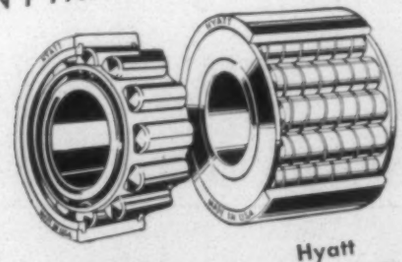
# HOWARD

**Products:** Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards—Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants—Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant—Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted-Eye and Regular Wire Heddles.

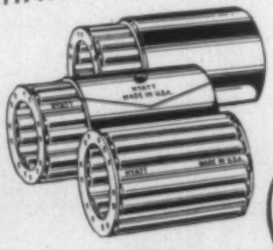
# LET HYATT HELP YOU MAKE THE MOST OF IT!

*Coming* To Greenville, S. C.
March 31st to April 5th
World's Greatest Textile Show

DON'T FAIL TO SEE THESE MECHANICAL MARVELS



Hyatt Hy-Load Type



Hyatt Wound Roller Type



Hyatt Solid Junior Type




**TO KEEP YOUR EQUIPMENT YOUNG** and always on the go make sure that Hyatt Roller Bearings are in the machines you build or buy. And, when at the show, see us in space 222, on the second floor of Textile Hall. Hyatt Bearings Division, General Motors Sales Corporation, Harrison, N. J.

# HYATT *Roller* BEARINGS

# An Open Letter

Whitinsville, Massachusetts.

Dear Mr. Mill Man:

May we have the pleasure of greeting you at Section No. 251 in Textile Hall, at Greenville, South Carolina, when the 14th Southern Textile Exposition opens on March 31st?

We promise you an interesting and, we hope, an instructive time. You will have the opportunity of seeing in operation one of the most finely built, modern units of cotton mill machinery that has been seen at any textile exhibit.

As combing is the basis of all fine yarns, there has been developed a NEW WHITIN COMBER having many features that are superior to those offered in any similar machine. These include an unexcelled quality of product, higher production per head, simplified, refined mechanisms, amazing ease in adjustments, and saving in floor space. *Have you seen the PERFECT PIECING? This Comber has it!*

Sliver from this new Comber will be fed to an interesting and BRAND NEW DRAWING FRAME which is a departure from the conventional frame. It produces two slivers of normal weight per delivery at speeds equal to or exceeding those of ordinary drawing, *deposited in a single can.* Some features to watch for: double production; half the usual number of cans for finisher drawing or roving; half the amount of normal draft; and *a better quality of drawing sliver!*

Sliver from this frame passes to a SUPER-DRAFT ROVING FRAME which, together with the Whitin Inter-Draft Roving and the Whitin Long Draft Roving System have been chiefly instrumental in establishing better drafting methods in the carding department. *Super-Draft Roving reduces your roving processes, without sacrificing quality.*

Roving made on the Super-Draft frame will be creeled on a standard WHITIN SPINNING FRAME equipped with the latest type of long draft; a development which, within scarcely more than a decade, has been adopted on six million spindles, and has proven in practice to be *the most economical, practical and efficient.*

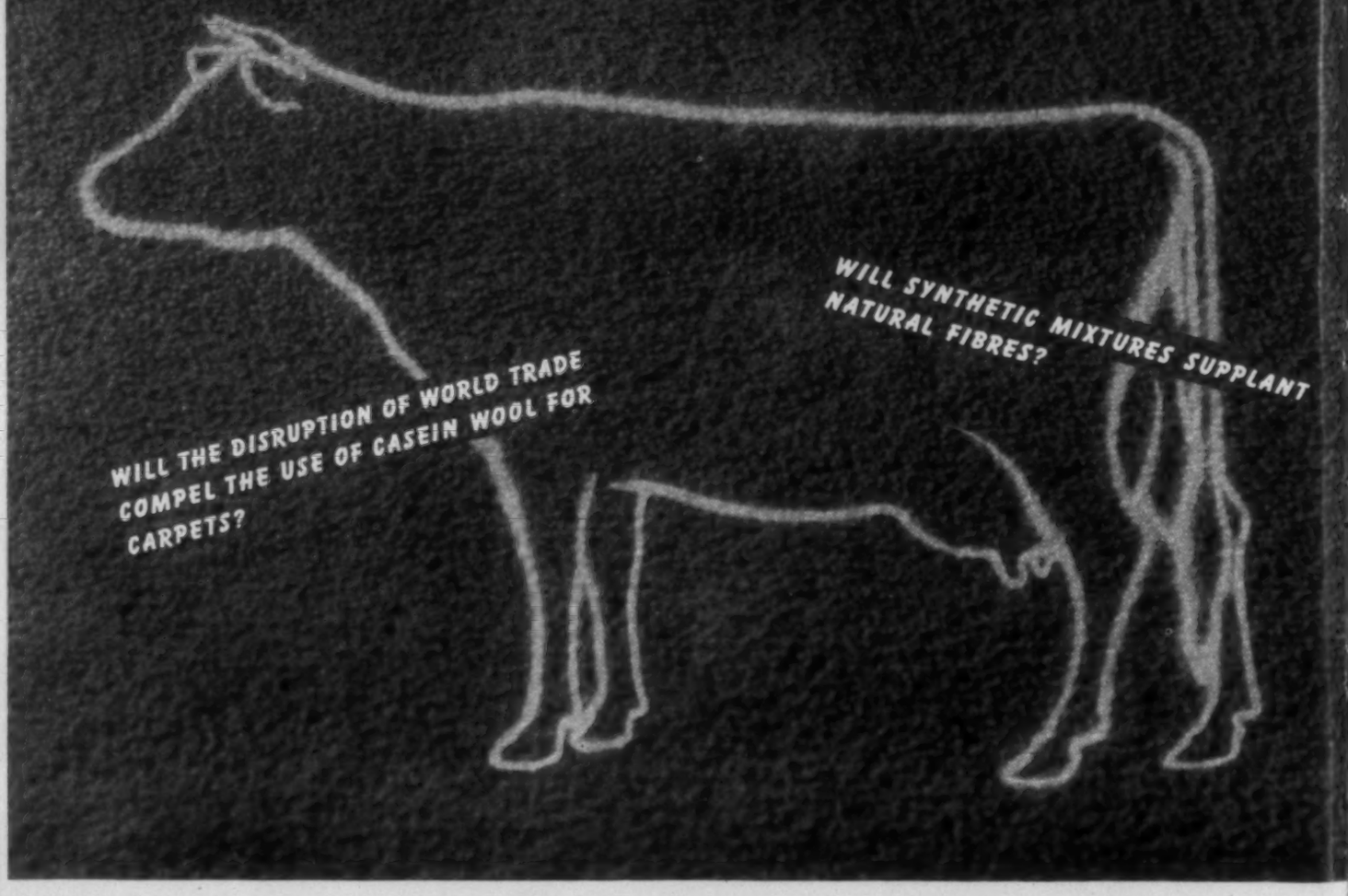
And finally, the newest development in automatic winders, the WHITIN-SCHWEITER AUTOMATIC FILLING BOBBIN WINDER. The enthusiasm with which this has been received by the trade is evidence of its practical value in combination with large package spinning. It can wind from a large variety of supply packages onto bobbins particularly suitable for weaving. This Winder gives increased yardage of perfectly wound yarn on a good, firm bobbin within a minimum of time. *The starting, winding and doffing are fully automatic, and the single spindle feature means less productive loss whenever an end breaks.*

We'll be there to answer your questions!

March, 1941.

Sincerely yours,
WHITIN MACHINE WORKS.

# *Will* CARPETS *come from* COWS ?




Will these new synthetic fibres, new mixtures, new weaves, new finishes turn your dyehouse into a chemical laboratory? • Whatever fabrics you are required to dye, National Technical Service, with an unmatched composite experience in solving color problems in every industrial field, is anxious to help you work out the most economical formula for your next job. • We invite you to use nearby National Technical Service.

## NATIONAL ANILINE & CHEMICAL CO., Inc.

**40 RECTOR STREET** — **NEW YORK, N. Y.**

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|---|---|---|
| BOSTON . . . 150 Causeway St. | PORTLAND, ORE. . 730 W. Burnside St. | CHATTANOOGA . . . James Bldg. |
| PROVIDENCE . . 15 Westminster St. | CHICAGO . . . . . 357 W. Erie St. | ATLANTA . . . . 140 Peachtree St. |
| PHILADELPHIA . 200-204 S. Front St. | CHARLOTTE . . . 201-203 W. First St. | NEW ORLEANS . Masonic Temple Bldg. |
| SAN FRANCISCO . . 517 Howard St. | GREENSBORO . Jefferson Standard Bldg. | TORONTO . 137-145 Wellington St., W. |

*BRANCHES AND DISTRIBUTORS THROUGHOUT THE WORLD*

*Quality Fabrics*
*at Low Cost*
*on Draper*
*X Series Looms*

# Your Mill Is In Competition With

## The Lower Weaving Costs and Better Cloth Quality of Draper X Series High Speed Looms

Can You Meet This Competition
With Your Present Looms?

### X Series Looms Sold

to February 1, 1941

| Model | Brought Out | Looms Sold |
|---|---|---|
| X | October 1930 | 40,257 |
| XK | April 1935 | 13,485 |
| XL | April 1935 | 3,499 |
| XD | April 1939 | 7,736 |
| XP | November 1940 | 301 |
| Total | | 65,278 |

An Exhibit of X Series Looms Including

**The New X-2 and XU Models**

Will Be Shown at The Draper Booth in The Textile Show
at Greenville S C March 31 to April 5 1941

Why Not See Them and See For Yourself

**Why Progressive Mills Are Buying Them**

# DRAPER CORPORATION

Hopedale Massachusetts

Atlanta Georgia — Spartanburg S C

# AMERICAN BOBBIN CO.

MASTER BOBBIN MAKERS SINCE 1899

**LEWISTON • MAINE • TEL • 2140 •**

JAMES E. COBURN, Treasurer
WILLIAM BOURASSA, Gen. Mgr.

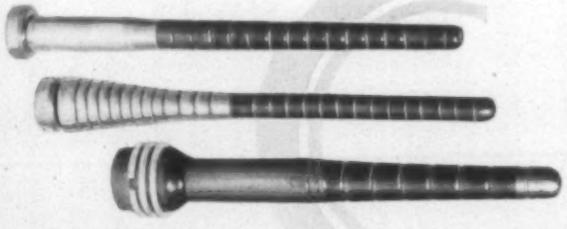
WE MANUFACTURE a varied and superior quality line of Bobbins, Quills and Spools for use in every branch of textile manufacturing. Each American Bobbin Co. product is carefully made from selected stock by master workmen. Because our modernly equipped factory is located in the very center of the bobbin stock section of New England, we have first choice of raw materials. Only the finest selected Birch, Beech and Maple is used in the manufacture of our products. In addition to our general line, we are also equipped to make specialties for any unusual need, and will be glad to quote you promptly —AND RIGHT—upon receipt of sample and description of your requirements.

For better Bobbins, better Values and better Service follow the lead of the leaders and buy American Bobbins.

*Samples on request. Write Today.*

AMERICAN BOBBIN CO., LEWISTON, ME.

**THREE PERFECTED BOBBINS FOR THE SILK AND RAYON TRADE**



**SUPER-SMOOTH**

Special hi-gloss baked-on finishes.

Brass feelers rolled-in to avoid rough edges which damage those fine filaments. Feelers anchored securely to prevent turning on the barrel.

Send us your shuttle with the different spindles you employ and let us demonstrate to YOU with samples to YOUR SPECIFICATIONS just what our bobbins will do to save trouble, reduce waste and increase YOUR production.

*No cost or obligation on your part.*


A **Perfected Quills**—For Rayon and Silk Mills. Our special Triple Security Design, made from seasoned Maple or Dogwood, with Non-Slip Brass Feelers.

B **Automatic Bobbins**—Made to standard in all styles; selected quality materials, finest workmanship.

C **Warp Bobbins**—Made in all standard styles, and to your special requirements. Available plain or with brass fittings.

D **Perforated Twister Bobbins**—Available with or without combination driver; Top Inside Bushing; White Metal or Brass Shields and Caps; Baked Enamel Finish will stand steam temperature up to 225 degrees F. There are none better.

E **Speeder Bobbins**—Special long base that gives longer life. Regular base also available.

F **Silk and Rayon Spools**—Special Stainless Steel Head. Truly an exceptional Spool.

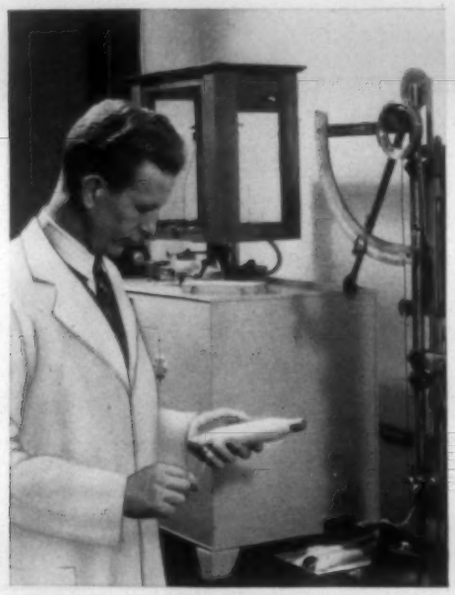
G **Cotton, Rayon and Silk Spools**—Made with extra quality Fibre Head.

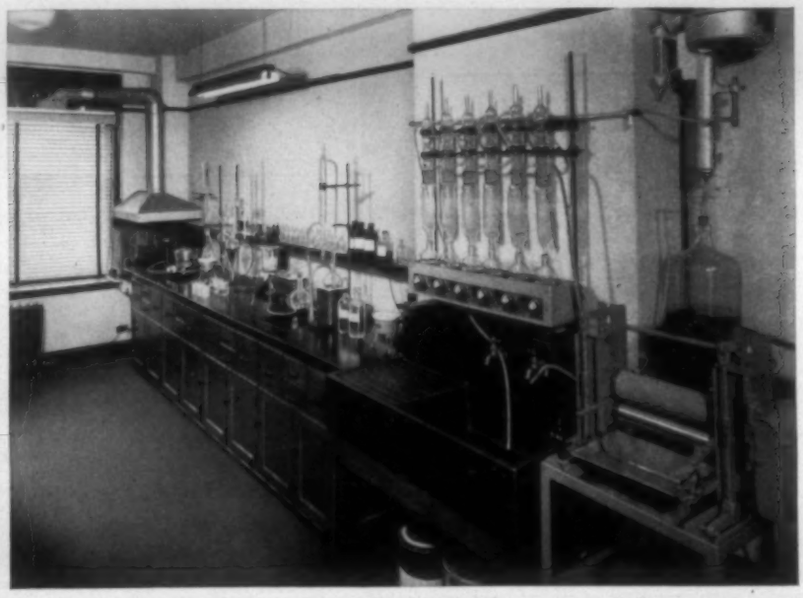
H **Twister Spools**—Made with either Anderson or Dixon Driver. White Metal or Brass Shields and Caps or Boynton Heads.

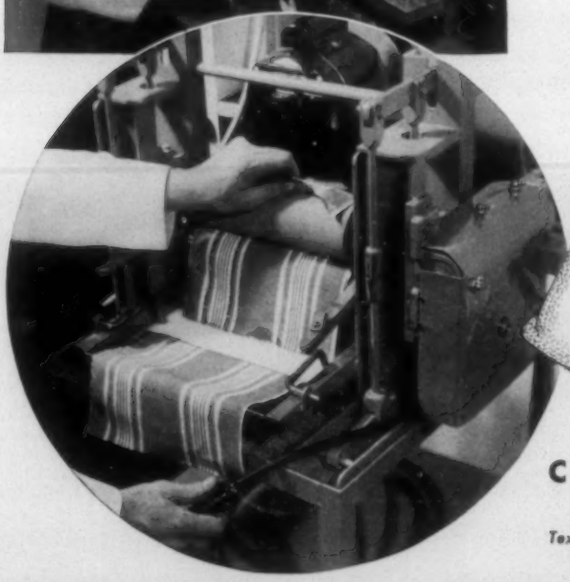
***LET THE MASTER BOBBIN MAKERS SERVE YOU***

# CORN PRODUCTS SALES COMPANY

## *Announces the Opening of New Textile Laboratory*







THESE are photographs of the interior of the modern, efficient new laboratory which the Corn Products Sales Company has established at Greenville, S. C., for testing and experimental work on textiles.

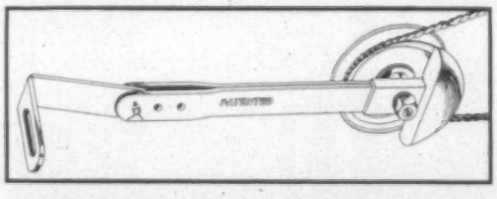
You are cordially invited to call on the resources of this laboratory! Our technicians will help you work out any WARP SIZING, FINISHING or other textile problems.

**VISIT US AT BOOTH NO. 457 AT THE SOUTHERN TEXTILE EXPOSITION**


**CORN PRODUCTS SALES COMPANY**

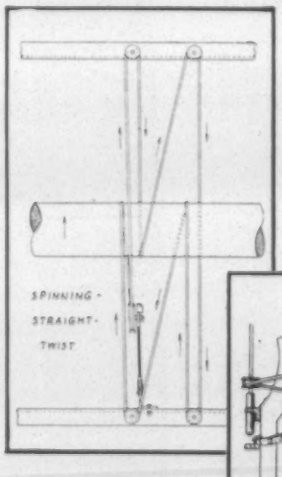
**17 BATTERY PLACE, NEW YORK, N. Y.**

*Textile Offices:* Greenville, S. C. • Greensboro, N. C. • Spartanburg, S. C.
Atlanta, Ga. • Birmingham, Ala. • Boston, Mass.

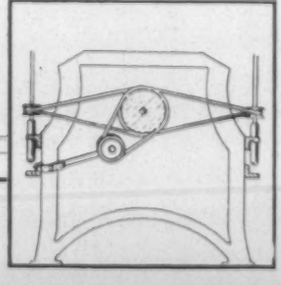



● *Meadows Tension Pulley—pressed steel stamping, precision balanced, with adjustable heavy split fork supporting arm, variable detachable weight and adjustable angle bracket.*

● *M - R - C Lubri-Seal Ball Bearing—deep-grooved, accurately ground and hardened. Fully protected against dirt and lint.*




● *Ease of installation is illustrated here. Only one 5/16-inch hole must be drilled through spindle ladder on bottom rail, to install one pulley for every four spindles.*



Cost-conscious mill executives are finding these ball bearing tension pulleys the economical and fool-proof correction agent for the expansion and contraction often encountered with band-driven spinning frames.

Installed at a fraction of tape-drive costs, they provide the equivalent benefits—uniform spindle speed, uniform twist at all times, no more band slippage and slack yarn, no more damp weather or dry weather or Monday morning band trouble, and once-a-year lubrication.

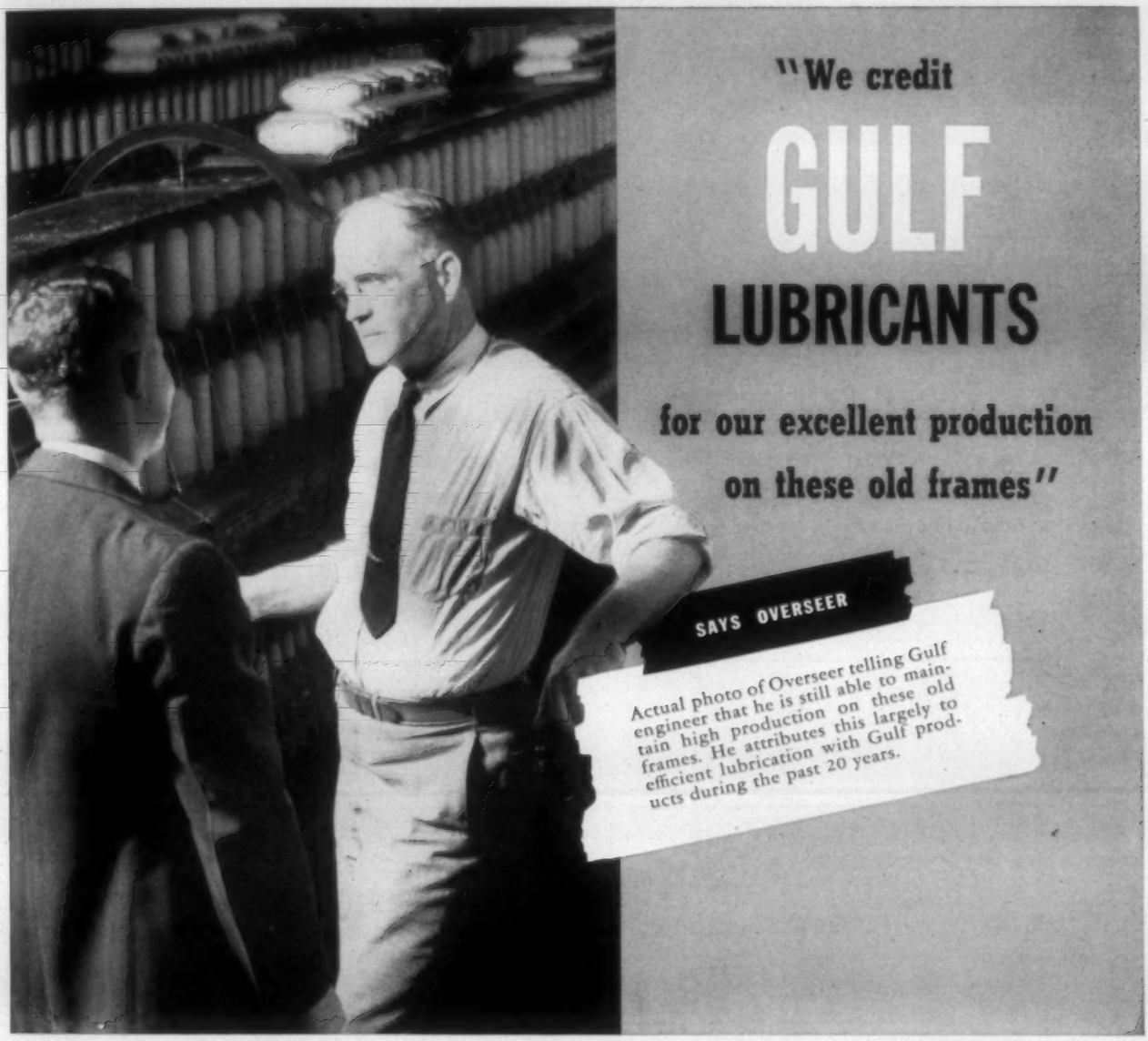
Meadows Tension Pulleys are pre-lubricated and sold with an unconditional one-year guarantee. They are sturdily built, and equipped exclusively with M-R-C Lubri-Seal Ball Bearings. Approximately 50,000 units, serving 200,000 spindles, have been sold in the past 3½ years without a single bearing failure!

*Write Today for Prices and Booklet*

# MEADOWS MANUFACTURING CO.

DOUBLE LOOP HOOK BANDS • BALL BEARING TENSION PULLEYS • SEPARATOR SHIELDS AND SPECIAL STAMPINGS FOR TEXTILE MILLS

POST OFFICE BOX 4354 ATLANTA, GEORGIA




## "Proper Lubrication also keeps our Maintenance Costs Low"...

"GULF quality lubricants and Gulf Periodic Consultation Service have enabled us to maintain production with low maintenance costs on these frames in spite of the fact that they are 35 years old," says this Overseer. "We have used Gulf products for the past 20 years."

Gulf Periodic Consultation Service and Gulf quality lubricants are improving performance and reducing costs on all types of textile equipment, new or old. Are you satisfied that your lubrication is efficient? . . . that it is helping you *keep costs down?*

Call in a Gulf engineer and ask him to recommend improved lubrication practice. The Gulf line of more than 400 quality oils and greases is quickly available to you through 1100 warehouses in 30 states from Maine to New Mexico. Write or phone your nearest Gulf office today.

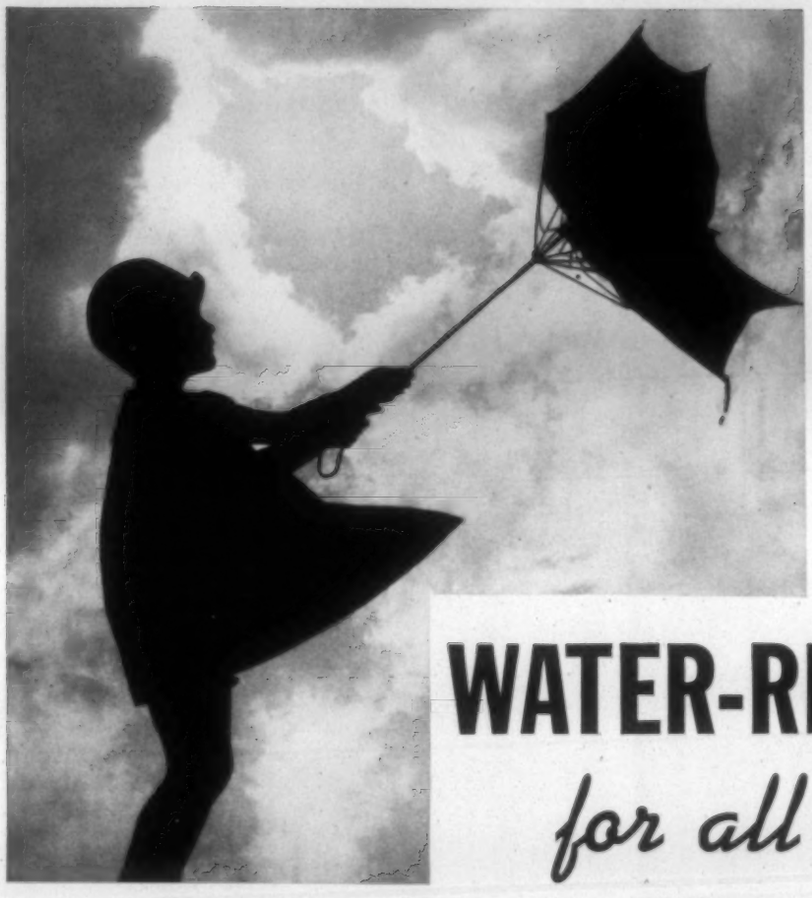
GULF INDUSTRIAL LUBRICATION


Gulf Oil Corporation - Gulf Refining Company
3800 Gulf Building, Pittsburgh, Pa. T.B.
Please send me my copy — no charge — of the booklet "GULF PERIODIC CONSULTATION SERVICE."

Name_____

Company_____

Address_____



# WATER-REPELLENTS
## *for all Fabrics*

High efficiency, real economy with these two outstanding types of water-repellents for *all* types of textile fibres: cotton, wool, silk, rayon, cellulose acetate, linen, etc. Both Luposec and Acetate of Alumina are adaptable to *your* processing methods. Both are genuinely stable.

### LUPOSEC

A successful *one-bath* repellent that eliminates repeated treatment of fabrics—in baths not easily controlled. Luposec is recognized as perfect for finer fabrics. It gives unusual smoothness and suppleness of hand.

Luposec has minimum effect on dyed shades and actually leaves white goods colorless and odorless. Makes colors faster to rubbing, sunlight, washing, etc. Luposec can be applied in either continuous or batch type machines—it requires no special equipment. Mixes quickly and thoroughly with gelatins, gums and other finishing compounds.

### ACETATE OF ALUMINA

Jacques Wolf Acetate of Alumina is exclusively processed—widely used for waterproofing Army and Navy supplies. Exceptionally high in aluminum content—7% $Al_2O_3$. Low in free acid content. Free of sulphates and sediment.

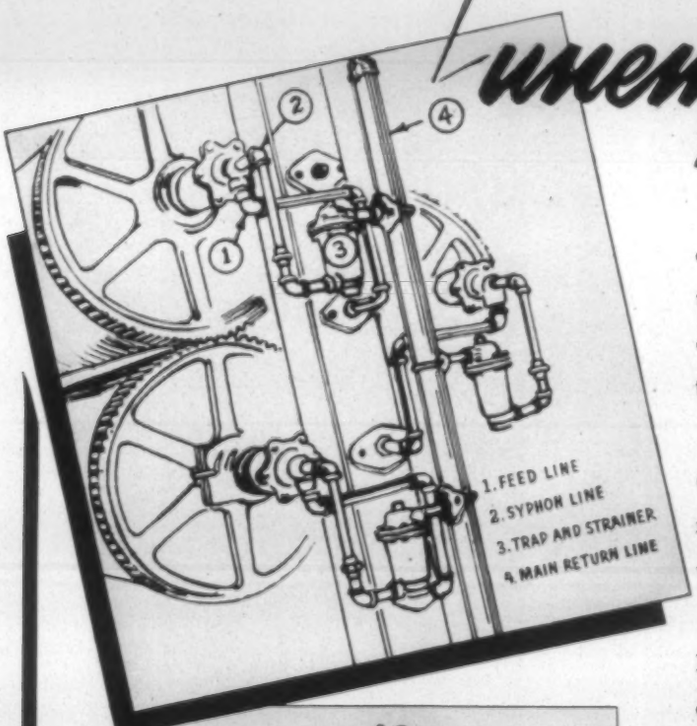
## LUPOSEC
## ACETATE
## *of*
## ALUMINA

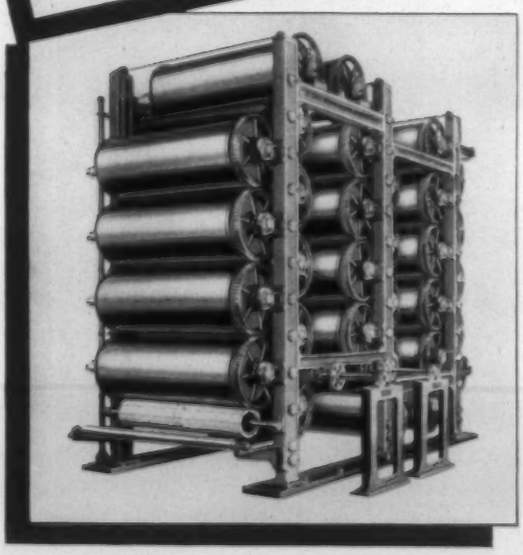
WOLF BRAND PRODUCTS

**JACQUES WOLF & CO.**
*Chemicals* PASSAIC, N. J.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn., Knoxville, Tenn., Charlotte, N. C., Milwaukee, Wisc., Columbus, Ga.
Midwestern Distributor: Bradley F. Marthens, Chicago, Ill.

# Textile CYLINDER DRYING MACHINE . . . It eliminates unemployed B.T.U's



When condensate stays overtime in your drying cylinders, your B.T.U.'s are loafing. Condensate that lingers reduces the efficiency of your cylinders, but if discharged promptly it INCREASES the overall efficiency of your drying system.

Textile's new method of discharging condensate (see diagram) is only one of many features which make Textile Cylinder Drying Machinery the last word in modernization.

Other features include Self Aligning Roller Bearing Housings and a choice of the following cylinder constructions:—Sheet Copper with single brazed seam, rolled and planished; seamless drawn tube; fabricated stainless steel with welded precision ground seam for high or low pressure service; standard tinned iron.

Customers may also have a choice of upright or horizontal designs with any number of cylinders, face up to 150 inches.

Let MODERNIZED Textile Service help you to step up your drying efficiency.

Visit us at the Greenville Show—Booth No. 114

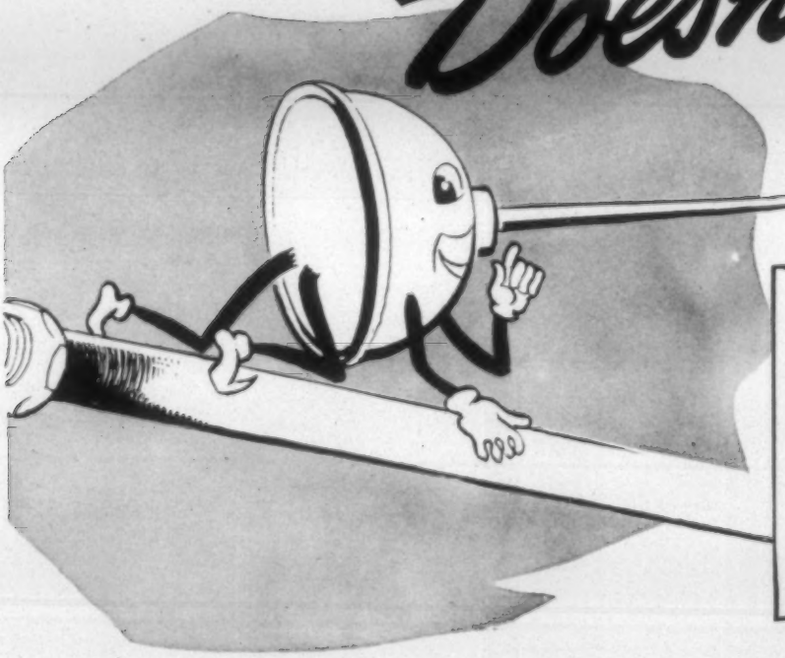
## The Textile Finishing Machinery Co.

**New York Office**
**50 Church St.**

**Southern Office**
**Johnston Bldg., Charlotte, N. C.**

*Providence, R. I.*

# Oil that Doesn't Creep



Thousands of Crompton & Knowles looms are kept in peak condition with TEXACO Lubricants.

**THEY PREFER TEXACO**

- ★ More railroad rolling equipment in the U. S. is lubricated with Texaco than with any other brand.
- ★ More tourists use Texaco *Fire-Chief* Gasoline than any other brand.
- ★ More scheduled airline mileage within the U.S. and to other countries is flown with Texaco than with any other brand.
- ★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.
- ★ More copper is produced in the U. S. by mines using Texaco Products than by all other copper mines combined.
- ★ More stationary Diesel horsepower in the U.S. is lubricated with Texaco than with any other brand.
- ★ More Diesel horsepower on streamlined trains in the U.S. is lubricated with Texaco than with all other brands combined.

YOU CAN REDUCE SPOILAGE from oil almost to zero . . . by changing to a lubricant that doesn't "creep" along the shaft.

Important mills in all textile centers have solved this oil-spotting problem . . . by lubricating with *TEXACO STAZON*.

*Texaco Stazon* resists thinning out, creeping, splattering. It *stays on* bearing surfaces, assuring ample lubrication with fewer applications.

The outstanding performance that has made Texaco preferred in the textile field has also made it preferred in the fields listed in the panel.

Buyers in these fields are enjoying many benefits. You, too, will find important advantages when you use Texaco Lubricants and Fuels.

A Texaco Lubrication Engineer will gladly cooperate in reducing spoilage in your mill. Phone the nearest of more than 2300 Texaco distributing plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

TEXACO DEALERS INVITE YOU TO ENJOY

FRED ALLEN in a full-hour program every Wednesday night. CBS, 9:00 E.S.T., 8:00 C.S.T., 10:00 M.S.T., 9:00 P.S.T.

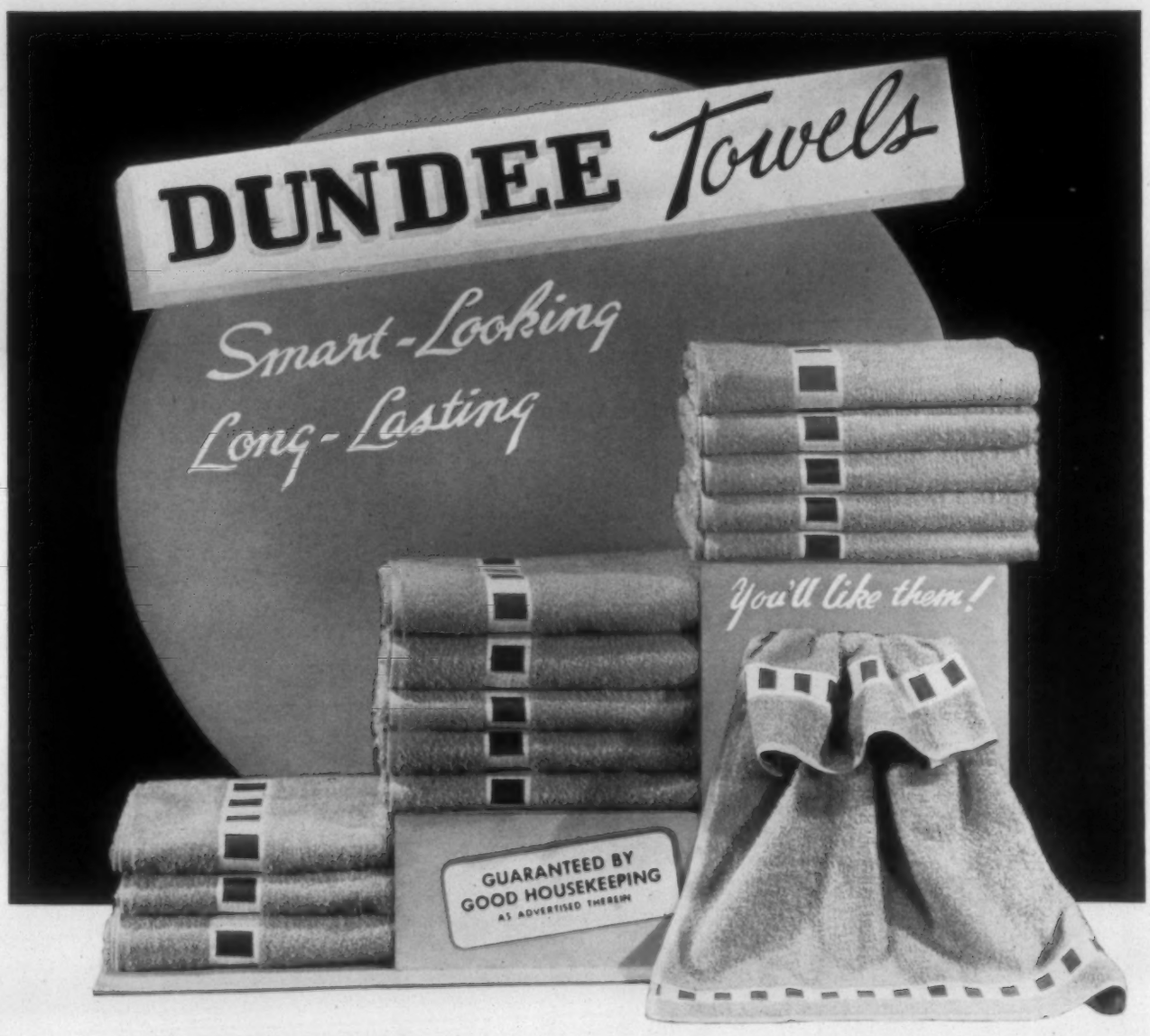
METROPOLITAN OPERA every Saturday afternoon, NBC. See local newspaper for time and station.

TEXACO

REG. T.M.

**TEXACO Lubricants**

**FOR THE TEXTILE INDUSTRY**





## A FAMOUS NAME NATIONALLY ADVERTISED

Plain and Fancy Turkish Towels, Plain and Fancy Huck Towels, Name-Woven Towels, Terry Cloths, Dish Towels, Crashes, Damasks, Napkins, Red Diamond and Bonnie Birdseye Diapers, Velvet Flannelette Diapers.

**GEORGIA-KINCAID MILLS, *Griffin, Ga.***

THIS IS NO. 26 OF A SERIES ON

# GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

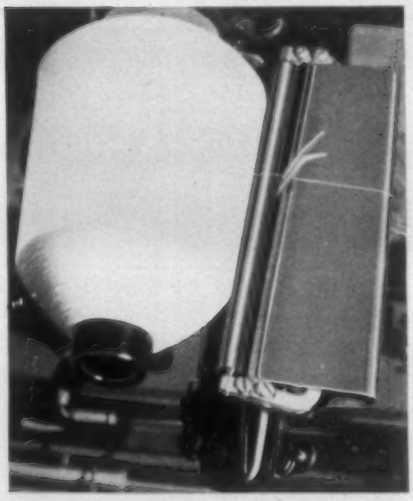
## WINDING PINEAPPLE CONES OF NYLON (No. 50 Winder)

The mills which are now winding Nylon have found that the requirements are very different from those they experienced with silk. Some of these mills, by experimenting, have been able to overcome difficulties and do successful winding. For benefit of other mills with less experience, we offer suggestions for improving quality of cones.

### *Speed, Winds, Traverse Lengths*

Maximum spindle speed should be 1200-1250 R.P.M. At higher speeds than this, there will be too much tension on the yarn to produce satisfactory packages. Best results are obtained with 4 winds although $3\frac{1}{4}$ winds have proved satisfactory.

The Pineapple Cone Attachment used for Nylon has a replaceable builder cam. Builder Cam #6 is used for Pineapple Cones with a starting traverse from $5\frac{1}{2}$" to 6" (Builder Cam #5 for starting traverses from 5" to $5\frac{1}{2}$"). The 5" Traverse Cam is used for all yarn traverses from 5" to 6".

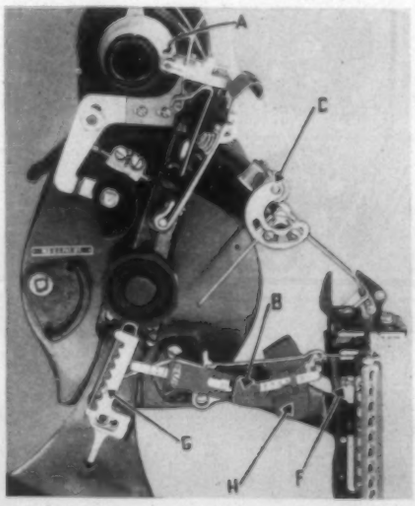


*At the start of winding, it will help to move the Traverse Frame Back away from the package. The traverse will be short, but this will prevent yarn from lapping around the Roller Bail. After a few layers have been wound, the Bail can be moved up to contact the cone and obtain the full length of traverse.*

### *Tension*

When a Roller Bail (A) is used with the Pineapple Cone Attachment, Nylon can be wound with less tension and more pressure. Proper control of tension and pressure is important for quality winding.

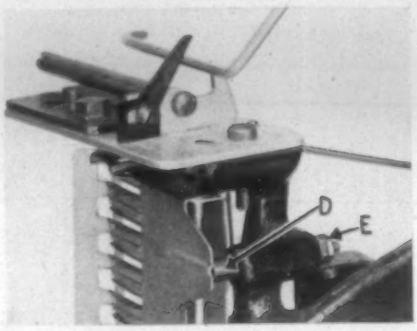
Only about 4 or 6 grams of tension are desirable at the start of winding, and *all* tension should be released at the finish except 2 to 4 grams produced by frictional contact. If, however, the yarn being wound has very low twist, the tension at the start should be about 4 grams and, at the finish, about 2 to 3 grams.




Tension is measured by means of a Tensometer between the Breakage Lever and Traverse Frame Back.

The proper control of tension is obtained by attaching the Auxiliary Tension Lever (B) between positions 5 and 6 on the Differential Tension Lever.

If, after making this setting, the amount of tension is too great, it will be necessary to take the weight of the Breakage Lever off the yarn by means of the Breakage Lever Balance (C). This can be done by positioning the Balance Weight at the top so that it nearly counterbalances the Breakage Lever, but still will allow it to drop when an end breaks. When the Balance Weight swings over and beyond dead center, its weight will force the Stopping Lever against the Wheel, quickly stopping the machine.




It is also important to set the Anti-Wear Tension so that the grids will not be allowed to open too far. This is done by twisting three ends together and pulling them tight, between the grids. The Closer (D) is set by means of the check nuts (E) to limit the maximum opening.

The Tension Stop (F) is set, with the yarn running, so that the movable grid will be prevented from passing too far through the stationary grid fingers. It should not actually touch the grid, for that would destroy the differential tension feature.

### *Pressure*

Pressure should be heavy at the start of winding — about 12 to 14 ounces when the Roller Bail is used. At the finish of a 9 to 12 ounce cone, pressure should be about 4 to 6 ounces. This will keep the Bail revolving and help to produce good cones.

Pressure is measured with a Pressure Gauge hooked into the top of the Traverse Frame Back.

The Differential Pressure Connecting Rod (G) is set in the fifth hole from the top of the Adjuster. The 5-ounce Pressure Weight (H) provides the proper amount of initial pressure when set between 6 and 7 on the Pressure Lever.

At the start of winding, the levers should be set at about 15 degrees above horizontal for proper release of tension and pressure.

If after these adjustments the proper release of pressure is not obtained, it may be that the Dog is dragging in the Segment, which will create pressure that cannot be released. There should be only enough tension on the Dog to keep it in contact with the Segment. When the Roller Bail is used, it will do no harm if the Traverse Frame Back is allowed to creep toward the package.

The finished cone should have a Densometer reading between 40 and 50.

*See our General Catalog in TEXTILE YEARBOOK.*

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AND
BOYS

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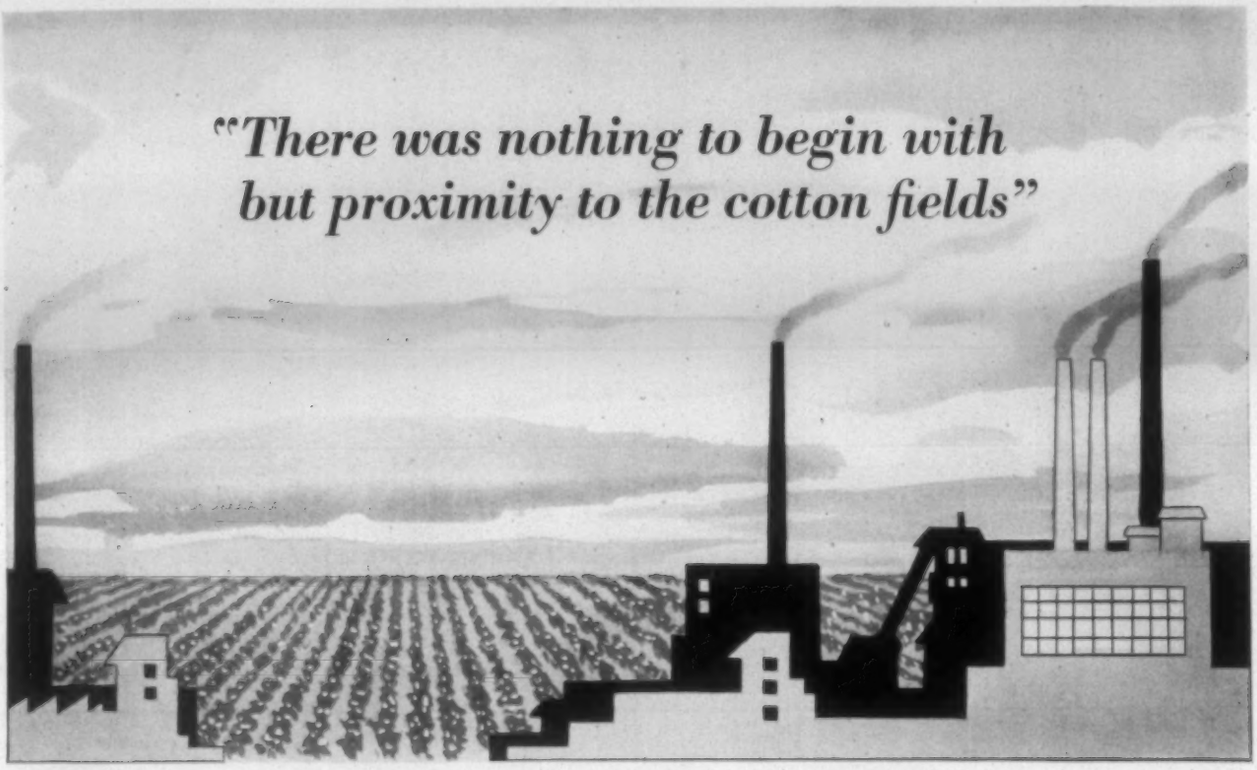
NEW YORK SELLING OFFICE — 93 WORTH STREET

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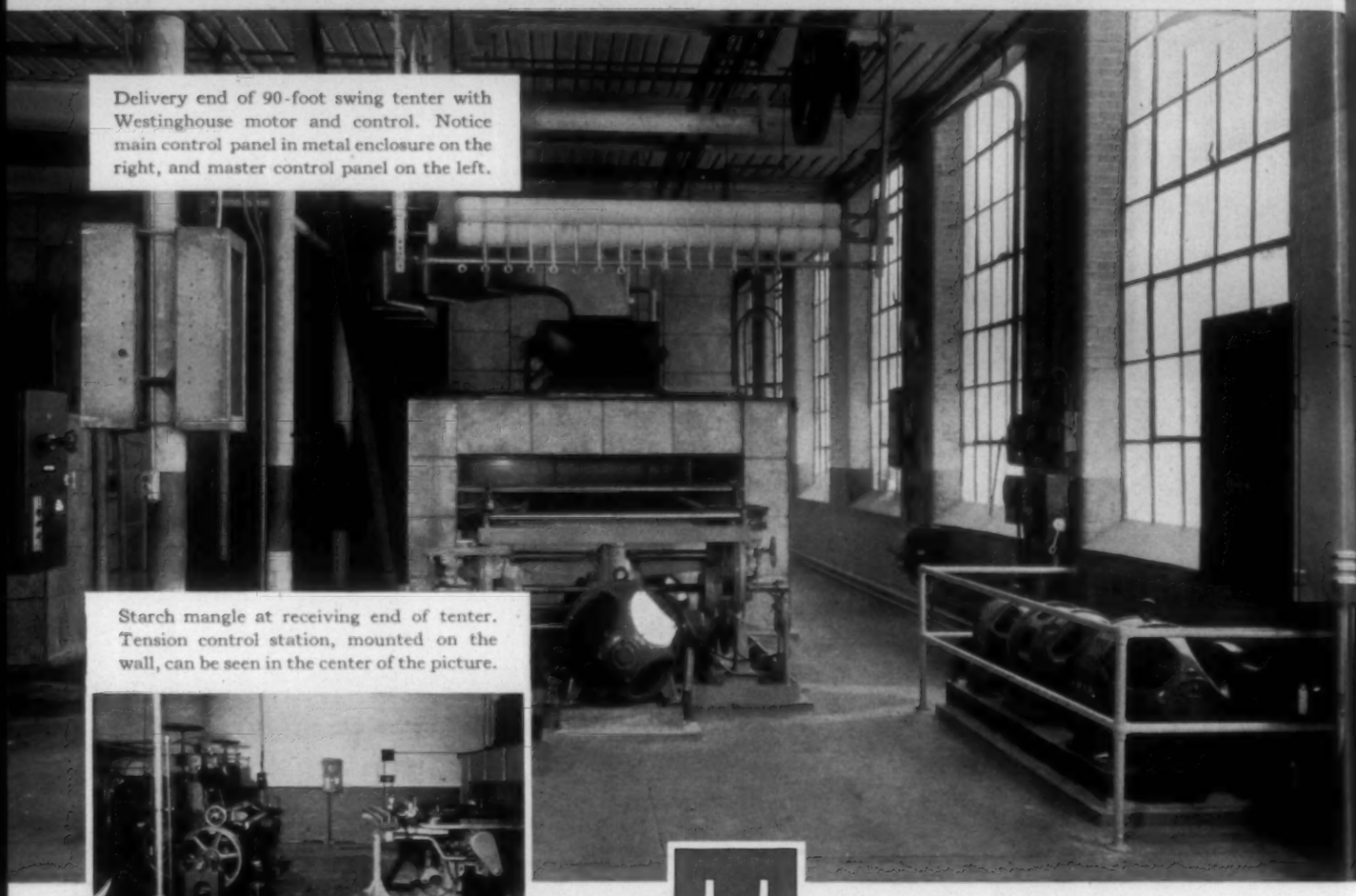
## WESTINGHOUSE DEVELOPMENTS SPEED TEXTILE PRODUCTION



Delivery end of 90-foot swing tenter with Westinghouse motor and control. Notice main control panel in metal enclosure on the right, and master control panel on the left.

Starch mangle at receiving end of tenter. Tension control station, mounted on the wall, can be seen in the center of the picture.



# Ten to one speed range with improved cloth tenter drive • • •

**LOOK TO WESTINGHOUSE FOR LATEST DEVELOPMENTS IN TEXTILE EQUIPMENT**

LINT-FREE MOTORS • LOOM MOTORS • GEARMOTORS • LOOM SWITCHES • NOFUZE PANELBOARDS • MICARTA PICKER STICKS

• • •

*See the Westinghouse Exhibit—Booths 417, 418, 419 Southern Textile Exposition—Greenville, South Carolina, March 31 to April 5.*

Six vitally important features are incorporated in the adjustable voltage drive for the starch mangle and swing tenter pictured here: (1) the drive operates over a speed range of ten to one; (2) it operates with or without dancer roll rheostat; (3) hand operated tension control is provided; (4) fast take-up is automatic; (5) dependable, dynamic braking is assured; (6) speed is accurately adjusted.

Combining all these features in a tandem drive gives greater flexibility and greater capacity. The result is better production for the starch mangle and swing tenter.

The co-ordination of electrical apparatus for these textile machines is further evidence of the resourcefulness of Westinghouse engineers. Their experience in solving scores of electrical problems for the textile industry is helping mills throughout the country to save money and improve production facilities. For complete information on how you can use their services, call your nearest Westinghouse office.

WESTINGHOUSE ELECTRIC & MFG. COMPANY, EAST PITTSBURGH, PA.

**Westinghouse**

J-94416

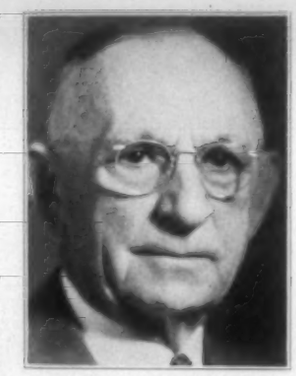
**TIME-SAVER FOR THE TEXTILE INDUSTRY**

TEXTILE BULLETIN

Vol. 60 March 15, 1941 No. 2

# 14th SOUTHERN TEXTILE EXPOSITION

## MARCH 31 – APRIL 5



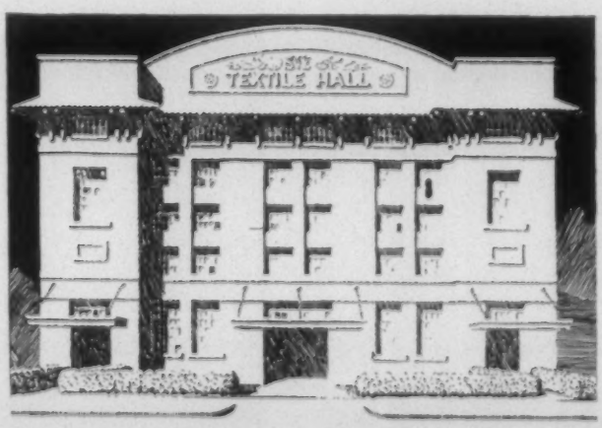
W. G. SIRRINE
Manager

BERTHA M. GREEN
Secretary

By W. G. Sirrine

TWENTY-FIVE years ago a group of superintendents, master mechanics and representatives of machinery manufacturers were attending a meeting of the Board of Governors of the Southern Textile Association. David Clark, editor of TEXTILE BULLETIN, offered a resolution that a committee be appointed to consider plans for holding a textile show in the South. At that time such an exhibition was held only in Boston. The motion, seconded by W. M. Sherard and the late Alonzo Iler, was unanimously adopted. Greenville was selected for the show. A. B. Carter was appointed Secretary and Edwin Howard, Treasurer.

Those who took an active part in that first Exposition included: M. O. Alexander, L. L. Arnold, J. N. Badger, W. C. Bobo, Robert Bowe, J. R. Brown, L. H. Brown, C. L. Chandlet, M. B. Clisby, F. Gordon Cobb, F. J. P. Cogswell, John L. Davidson, Marshall Dilling, A. M. Dixon, A. E. Escott, Jas. A. Greer, D. R. Harriman, Frank E. Heymer, L. P. Hollis, Ben F. Houston, V. M. Johnson, J. W. Kelley, George M. MacNider, V. M. Manning, J. M. Maxwell, H. C. Mims, W. S. Morton, F. M. Osteen, J. E. Sirrine, T. A. Sizemore, G. G. Slaughter, Harold C. Smith, Milton G. Smith, J. H. Spencer, C. P. Thompson, W. F. Walker, T. B. Wallace, J. R. Wilson. The show was held in a new warehouse. It was a complete success from every point of view.




Some of the founders are no longer living. The names of several who took part I do not now recall. These expositions have meant so much to the textile industry that due credit should go to those who established them.

The next year a corporation was formed. The bonds and stock were subscribed by the mills, machinery houses and public-spirited citizens. Textile Hall was completed in 1917 and is now the permanent home of the show.

Thirteen expositions have been held. We have enjoyed the support of practically every manufacturer of machinery, equipment, materials, parts, accessories, and supplies used by the industry. We have had the co-operation of manufacturers of cotton, wool, silk, rayon, and linen products. We have made progress along with the advances in mechanical technique and finishing which has been noted in recent years.

Thanks to the foresight which inspired the idea, and the intelligence, technical knowledge and persistence of the officers of those early years the "textile show" is now a national event. Through this period of a quarter of a century the officers and directors of the corporation have received valuable counsel from the founders, and from the makers of machinery and equipment. No trade show is more truly representative of its industry than the Southern Textile Exposition. Without the continued good will and help of the executives, department

heads and workers in every plant in the South, and some in the East, we could not have made the progress that will be typified in the exposition which opens March 31st.

The management spends two years in the preparation of each show. It is our constant purpose to improve the facilities for visitors as well as for the exhibits. Last year Textile Hall was overhauled from top to bottom by the contractor who erected it. It was found necessary to make extensive replacements and repairs, and do considerable painting. For the approaching show, a large temporary Annex has been constructed.

The list of exhibitors now numbers over 200 and there remains practically nothing to be sold. We regret that several important exhibitors were unable to find accommodations due to the fact that their applications were not filed until a few weeks ago. The variety of goods to be displayed includes everything to answer the needs of textile plants for construction, renovation, or extension.

Nowadays, it is necessary to keep a mill equipped in the modern manner if profits are to be made. This was not so when Textile Hall was built, "but times have changed, old manners gone." And the thought may be expressed also by the old Latin maxim "Tempus fugit et nos fugimus."

Exhibitors and visitors will find the general plan of exhibits similar to last year. The Hall will be appropriately decorated with cotton fabrics. The prevailing colors will be goldenrod, green and white. Many of the booths will also be decorated in the harmonizing colors of dark blue and grey. One of the rooms will be brightened up by a noticeable over-shade of red. The building will be better lighted than ever before. The various services for exhibitors have been improved, and the secretary's office will be equipped to handle practically any need. The telegraph and telephone companies will have operators in the room off the lobby to serve their customers. The Bureau of Information will be kept open, and the secretary of the Rooms Committee will be in her usual place. It would be well for every visitor who has not arranged for quarters to write to the Rooms Committee before arrival. Rooms will be at a premium.

It would be impossible in a short review to cover the numerous things that will be on display. In short, let it be said that any financial or operating executive who fails to visit the Southern Textile Exposition at least one day will be losing an opportunity to improve his capacity and his production, and therefore his profits. Many of the exhibitors are preparing their booths at home and will ship them complete. Never before have so many expert decorators in large cities been engaged by exhibitors to provide booth decorations and equipment. However, the thing that makes an exhibit attractive is what is in the booth. That is what the visitor comes to see. Not the way it is set off, though undoubtedly a good picture deserves a good frame.

---

### Lapel Buttons

As has been the custom in past years, lapel buttons will be distributed to mill executives at the Show. Grey buttons will be given to executives such as president, treasurer, secretary, etc. Superintendents will be given a blue button; overseers an orange button; master mechanics a green button.

## Show Week Activities

### MONDAY, MARCH 31

Opening exercises in Textile Hall at 11 A. M. Governor Burnet R. Maybank of South Carolina will deliver the principal address. He will be introduced by Congressman Joseph R. Bryson. Jesse H. Jones, Secretary of Commerce, is expected to attend luncheon for distinguished guests at Chamber of Commerce.

### TUESDAY, APRIL 1

Rotary Club of Greenville will entertain all visiting Rotarians among the exhibitors at a luncheon in the Poinsett Hotel.

### WEDNESDAY, APRIL 2

Greenville Chapter of "Bundles for Britain" will give a ball in the evening in honor of the exhibitors. All proceeds will go to the aid of Britain.

General Assembly of the State of South Carolina invited to attend the Exposition.

### THURSDAY, APRIL 3

A. S. M. E. meeting at dinner. President Wm. A. Hanley will be present.

### FRIDAY, APRIL 4

The Southern Textile Association, Alabama Textile Operating Executives, and the Textile Operating Executives of Georgia will meet jointly at a luncheon at the Poinsett Hotel. Hugh M. Comer, general manager of Avondale Mills, to be speaker.

### SATURDAY, APRIL 5

Exposition officially closes at 4 P. M.

### Opening and Closing Hours for the Show

| | Open | Close |
|---|---|---|
| Monday | 11:00 A. M. | 9 P. M. |
| Tuesday | 9:30 A. M. | " " |
| Wednesday | " " | " " |
| Thursday | " " | " " |
| Friday | " " | " " |
| Saturday | 9:00 A. M. | 4 P. M. |

+ REGISTER +

AT TEXTILE BULLETIN BOOTH

No. 204, Second Floor

Main Building

Textile mill officials and operating executives are requested to register at Textile Bulletin's booth as soon as possible after reaching Textile Hall.

Continuing the service it has rendered at past Expositions, this journal will publish at frequent intervals each day, Exposition Bulletins, carrying the names of those attending the show and announcements of interest to exhibitors.

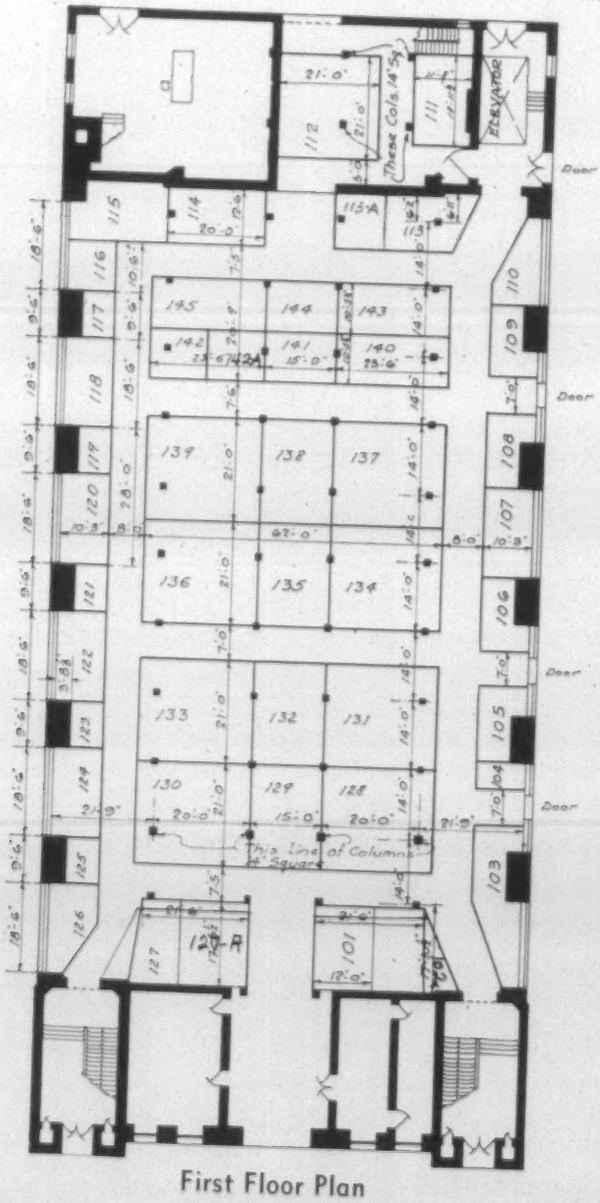
# List of Exhibitors

FOLLOWING is a list of the concerns that will have exhibits at the Fourteenth Southern Textile Exposition, held in Greenville, S. C., at Textile Hall, March 31st to April 5th. The approximate location of the booths may be determined by referring to the information in color at the top of this page, and by observing the booth numbers on the floor plans on the following pages.

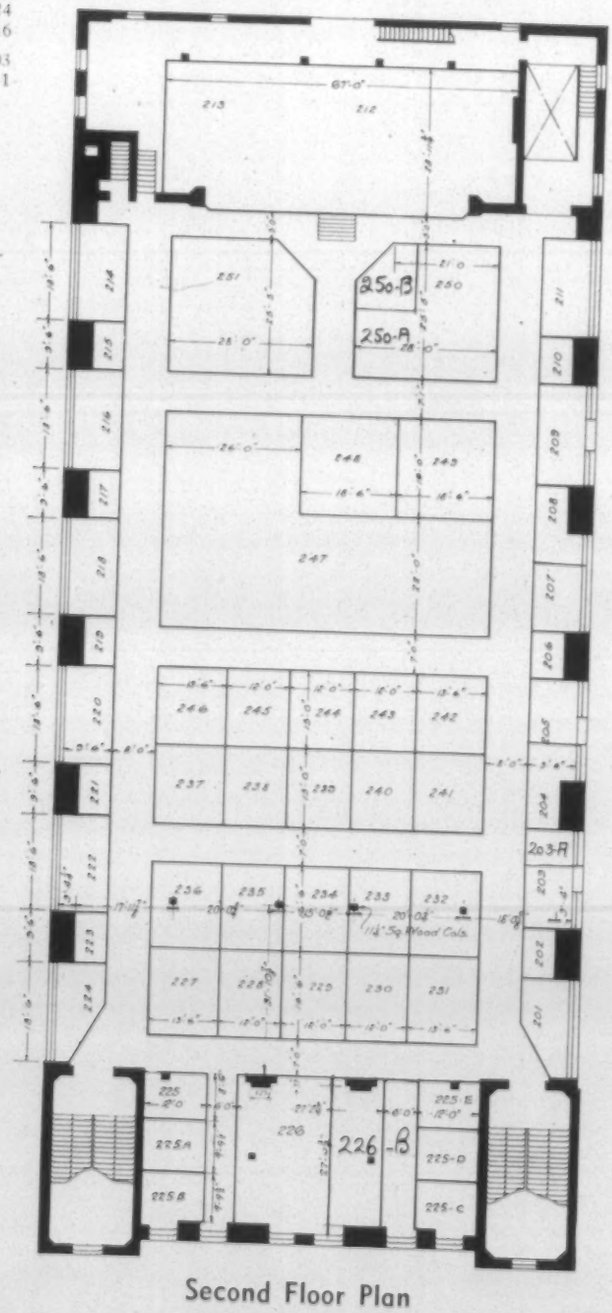
| EXHIBITOR | BOOTH NO. |
|---|---|
| Abbott Machine Co. | 212-213 |
| Aldrich Machine Works | 250-250-A |
| Alemite Div. of the Stewart Warner Corp. | 405 |
| Allen Mfg. Co., The | 113-A |
| Allentown Bobbin Works, The | 316-A |
| Allis-Chalmers Mfg. Co. | 487 |
| Allis, Louis Co., The | 108 |
| Aluminum Co. of America | 455-456 |
| American Air Filter Co., Inc. | 317-318-319 |
| American Brass Co., The | 450-451-452 |
| American Crayon Co., The | 325 |
| American Cyanamid & Chemical Corp. | 490 |
| American Lumber & Treating Co. | 436 |
| American Magnesium Corp. | 455-456 |
| American Moistening Co. | 132 |
| American Mutual Liability Ins. Co. | 345 |
| American Rolling Mill Co., The | 462-463 |
| American Safety Table Co., The | 227-228 |
| American Steel & Wire Co. | 122 |
| American Wool & Cotton Reporter | 208 |
| Armstrong Cork Co. | 140 |
| Armstrong Machine Works | 489-A |
| Arnold, Hoffman & Co., Inc. | 464 |
| Ashworth Bros., Inc. | 120-121 |
| Atlanta Brush Co. | 453-454 |
| Atlanta Paper Co. | 340 |
| Atwood Machine Co., The | 486 |
| Bahan Textile Machinery Co., Inc. | 137-138 |
| Bahnson Co., The | 216-217-218 |
| Barber-Colman Co. | 247-248-249 |
| Bassick Co., The | 437 |
| Bemis Bro. Bag Co. | 355 |
| Benjamin Electric Mfg. Co. | 113 |
| Birch Bros., Inc. | 221 |
| Blue Ridge Glass Corp. | 304 |
| Bond Co., Chas. | 448 |
| Bowen-Hunter Bobbin Co. | 225 |
| Bradley Washfountain Co. | 305-306-307 |
| Bristol Co., The | 431-432 |
| Brown Instrument Co., The | 420-421-422 |
| Bunting Brass & Bronze Co., The | 479 |
| Butterworth & Sons Co., H. W. | 123-124 |
| Carborundum Co., The | 312-313 |
| Carnegie-Illinois Steel Corp. | 122 |
| Charlotte Leather Belting Co. | 317-A |
| Chemical Processing Co. | 338 |
| Clinton Co. | 205-206 |
| Clover Leaf Mfg. Co. | 110-B |
| Cocker Machine & Foundry Co. | 488-A |
| Coffing Hoist Co. | 119 |
| Colt's Patent Fire Arms Mfg. Co. | 102 |
| Columbia Steel Co. | 122 |
| Continental-Diamond Fibre Co. | 106 |
| Corn Products Refining Co. | 457 |
| *Cotton* | 408 |
| Courtney, Dana S. Co. | 225 |
| Crompton & Knowles Loom Works | 134-135-136 |
| Crouse-Hinds Co. | 471 |
| Curtis & Marble Machine Co. | 238-239 |
| Cutler, Roger W. | 111 |
| Cyclone Fence Co. (With U. S. Steel Corp.) | 122 |
| Dayton Rubber Mfg. Co., The | 145 |
| Decorated Metal Mfg. Co., Inc. | 352 |
| Denman Tire & Rubber Co., The | 465-466 |
| Diagraph-Bradley Stencil Machine Corp. | 453-454 |
| Diehl Mfg. Co. | 232-233 |
| Dow Chemical Co., The | 483-A |
| Draper Corporation | 128-129-130 |
| DuPont de Nemours & Co., E. I. (Finishes Div.) | 461 |
| DuPont de Nemours & Co., E. I. (Rayon Div.) | 445 |
| Economy Baler Co., The | 465-466 |
| Fafnir Bearing Co., The | 209 |
| Fairbanks, Morse & Co. | 449 |
| Fairchild Publications | 308 |
| Fyans, A. F. | 353 |
| Faultless Caster Corp. | 203-A |
| Fibre Specialty Mfg. Co. Div. | 478 |
| Finnell Systems, Inc. | 110 |
| Fiske Bros. Refining Co. | 334 |
| Fletcher Works, Inc. | 108-A |
| Foster Machine Co. | 229-230-231 |
| Foxboro Co., The | 426-427 |

| EXHIBITOR | BOOTH NO. |
|---|---|
| Friden Calculating Machine Co. | 314 |
| Gates Rubber Co., The | 341-342 |
| General Electric Co. | 116-117-118 |
| General Electric Co. (Incandescent Lamp Dept.) | 115 |
| Gilmer Co., L. H. | 225 |
| Graton & Knight Co. | 404 |
| Greenville Textile Supply Co. | 225 |
| Gulf Oil Corp. | 211 |
| H & B American Machine Co. | 112 |
| Hercules Powder Co. | 331-332-333 |
| Hershey, Henry H. | 406 |
| Hollister, E. W. | 227-228 |
| Hope Webbing Co. | 225 |
| Houghton & Co., E. F. | 423 |
| Howard Bros. Mfg. Co. | 242-243 |
| Huntington & Guerry, Inc. | 219 |
| Hyatt Bearings Div. General Motor Sales Corp. | 222 |
| Hygrade Sylvania Corp. | 488 |
| Industrial Steels, Inc. | 428 |
| International Business Machines Corp. | 335-336 |
| International Filter Co. | 322-323-324 |
| International Salt Co., Inc. | 315-316 |
| Jacobs Mfg. Co., Inc., E. H. | 403 |
| Jenkins Bros. | 440-441 |

| EXHIBITOR | BOOTH NO. |
|---|---|
| Johns-Manville | 477 |
| Johnson Bronze Co. | 443-B—444 |
| Johnson Corp., The | 489-B |
| Kearny Mfg. Co., Inc. | 480 and 485 |
| Keever Starch Co. | 407 |
| Kidder Press Co., Inc. | 354 |
| Lawlor Co., S. C., The | 301-302 |
| Lazenby & Co., Inc., F. A. | 244 |
| Leyland Machinery Co., Thos. | 460 |
| Limerick Yarn Mills | 350 |
| Link-Belt Co. | 220 |
| Lunkenheimer Co., The | 429-430 |
| Macbeth Daylighting Corp. | 309-310 |
| Mathieson Alkali Works, Inc., The | 469-470 |
| McLeod Leather & Belting Co. | 225-225-A—225-B—226-A |
| Merco Nordstrom Valve Co. | 416 |
| Merrow Machine Co., The | 227-228 |
| Mexico Refractories Co. | 337 |
| Miller Co., The | 424-425 |



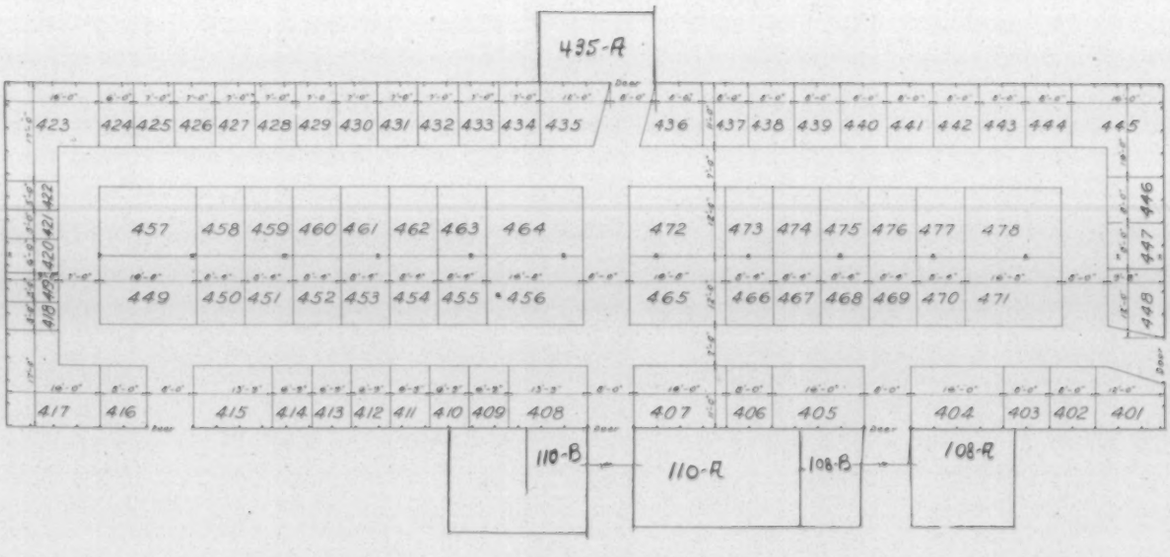

First Floor Plan




Second Floor Plan

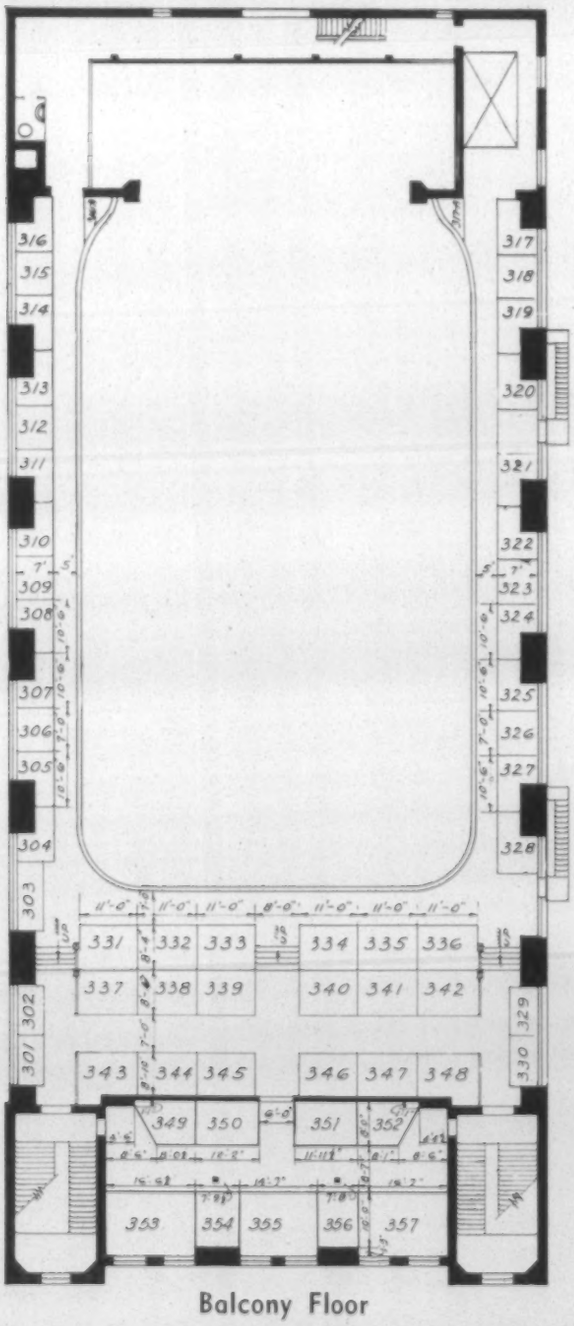

| EXHIBITOR | BOOTH NO. |
|---|---|
| Mitchell & Smith, Inc. | 142 |
| Monroe Calculating Machine Co., Inc. | 346-347-348 |
| Myles Salt Co., Ltd. | 484 |
| National Carbon Co., Inc. | 141 |
| National Ring Traveler Co. | 214 |
| National Starch Products, Inc. | 326-327 |
| New Departure Div. of General Motors Sales Corp. | 472 |
| N. Y. & N. J. Lubricant Co. | 109 |
| Noone & Co., Wm. R. | 488 |
| Norma-Hoffmann Bearings Corp. | 101 |
| Oakite Products, Inc. | 329-330 |
| Odell Mill Supply Co. | 225 |
| Pabst Sales Co., Industrial Products Div. | 328 |
| Paige Co., Frank E. | 225 |
| Parks & Woolson Machine Co. | 311 |
| Parks-Cramer Co. | 435-A |
| Penick & Ford, Ltd., Inc. | 438-439 |
| Plibrico Jointless Fire Brick Co. | 442-443-A |
| Powers Regulator Co., The | 435 |

| EXHIBITOR | BOOTH NO. |
|---|---|
| Ragan Ring Co. | 127 |
| Rayon Publishing Corp. | 215 |
| Reeves Pulley Co. | 240-241 |
| Reiner, Robt., Inc. | 127-A |
| Reliance Electric & Engineering Co., The | 143 |
| Republic Steel Corp. | 473-474-475-476 |
| Rhoads & Sons, J. E. | 245-246 |
| R. I. Warp Stop Equipment Co. | 131 |
| Rice Barton Corp. | 349 |
| Ridge Tool Co., The | 413-414 |
| Roy & Son Co., B. S. | 207 |
| Saco-Lowell Shops | 225-C—225-D—225-E—226-B |
| Selig Co., The | 301-302 |
| Seydel-Woolley & Co. | 320-321 |
| Shell Oil Co., Inc. | 483 |
| Sherwin-Williams Co., The | 401-402 |
| Sinclair Refining Co. | 103-A |
| Singer Sewing Machine Co. | 232-233 |
| Sirrine & Co., J. E. | 203 |
| S K F Industries, Inc. | 409-410-411 |
| Smith, Drum & Co. | 133 |

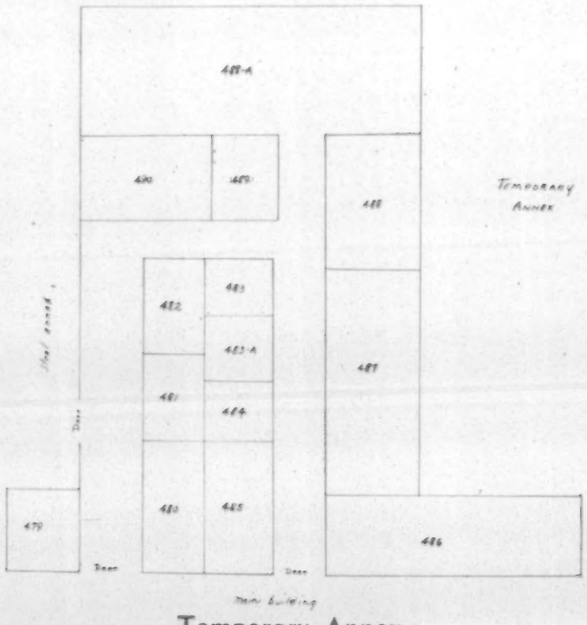



Annex No. 1

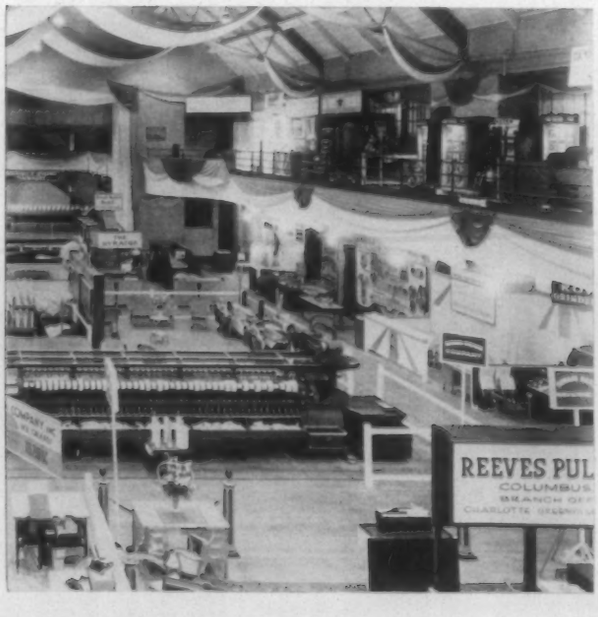
| EXHIBITOR | BOOTH NO. |
|---|---|
| Socony-Vacuum Oil Co. | 343-344 |
| Sonoco Products Co. | 237 |
| Southern Shuttles, Inc. | 139 |
| Spaulding Fibre Co. | 482 |
| Staley Mfg. Co., A. E. | 415 |
| Standard Oil Co. of N. J. | 481 |
| Steel Heddle Mfg. Co. | 139 |
| Stein, Hall & Co., Inc. | 467-468 |
| Sturtevant Co., B. F. | 104-105 |
| Sullivan Hardware Co. | 488 |
| Talcott, Inc., W. O. & M. W. | 412 |
| Taylor-Colquitt Co. | 210 |
| Taylor Instrument Cos. | 446-447 |
| Tennessee Coal, Iron & Railroad Co. | 122 |
| Terrell Machine Co., The | 465-466 |
| *Textile Age* | 303 |
| TEXTILE BULLETIN, THE | 204 |
| Textile-Finishing Machinery Co., The | 114 |
| *Textile World* | 223-224 |
| Thompson & Son Co., The Henry G. | 142-A |
| Tide Water Associated Oil Co. | 356-357 |
| Toledo Scale Co. | 458-459 |
| Tolhurst Centrifugal Div. American Machine & Metals, Inc. | 103 |
| Truscon Steel Co. | 473-474-475-476 |
| U. S. Gutta Percha Paint Co. | 201 |
| U. S. Ring Traveler Co. | 433-434 |
| U. S. Steel Corp. Subsidiaries | 122 |
| U. S. Textile Machine Co. | 110-A |
| Universal Atlas Cement Co. (With U. S. Steel Corp.) | 122 |
| Universal Winding Co. | 234-235-236 |
| Veeder-Root, Inc. | 107 |
| Victor Ring Traveler Co. | 250-B |
| Wabash Appliance Corp. | 351 |
| Walker Mfg. Co. | 225 |
| Watson-Williams Mfg. Co. | 125-126 |
| Wellman Co., The S. K. | 339 |
| Westinghouse Elec. & Mfg. Co. | 417-418-419 |
| Wheeler Reflector Co. | 225 |
| Whitin Machine Works | 251 |
| Whitinsville Spinning Ring Co. | 202 |
| Yale & Towne Mfg. Co., The | 144 |




Balcony Floor




Temporary Annex



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*(Sprayed by Binghamton Service & Painting Co.)*

## BEFORE and AFTER: Shadows and Glare banished by One Coat of SAVE-LITE White Paint!

"MAKING Link Trainers is a precision job, and good light is vital!" says E. A. Link, Pres. Link Aviation Devices, Inc. "That's why we selected Sherwin-Williams Save-Lite white paint for reconditioning an old plant we recently took over. As the photos show, Save-Lite literally transformed the old plant into a bright, cheery workshop. One coat of this high-light-reflecting paint raised lighting levels to 65 foot-candles—an increase of 35%! It covered brick, wood and cement perfectly."

Time-tried, light-reflecting white Save-Lite increases working light amazingly. It has reduced errors, improved housekeeping, cut workers' fatigue and eye-strain in many plants in all lines of industry. And it covers so well, spreads so far, stays white so long, that it really is more economical than many cheap "mill whites." Mail coupon today for complete data. Sherwin-Williams Co., Cleveland, Ohio and all principal cities.

### WHAT IS SAVE-LITE?

Save-Lite is a scientifically-designed white enamel, made only by Sherwin-Williams, world's largest paint manufacturers.

Made in white only, for plant and shop interiors where greatest light reflection is desired.

It reflects nearly 90% of the light available, actually more than many mirrors!

Save-Lite stays white, will not turn yellow. Special types resist fumes and humidity.

Covers solidly, even over black. Easily applied, has a high spreading rate—extremely economical.

Purchase of Save-Lite includes service by Sherwin-Williams technicians trained in industrial painting problems.

Special tests and complete surveys are made—at no cost or obligation!

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Gentlemen:
Please send information on better illumination with white paint and the facts on Save-Lite White.

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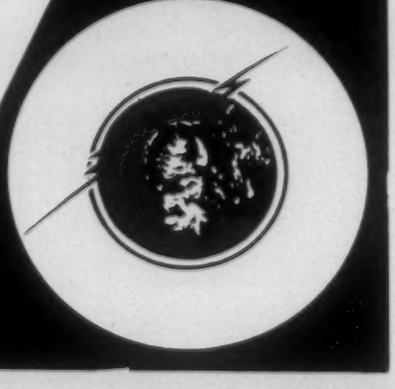



# PREVIEW OF EXHIBITS

**Abbott Machine Co., Wilton, N. H., and Greenville, S. C. Booths 212-213.**

**Exhibit:** Abbott automatic warping cone winder, Abbott automatic loom drop wire machine, Abbott loom bobbin winder.

**In attendance:** E. J. Abbott, W. G. Abbott, Jr., L. S. Ligon, S. A. Roane, J. T. Johnson, Joseph Ring, F. L. Hendricks.

**Aldrich Machine Works, Greenwood, S. C. Booth 250-A.**

**Exhibit:** Aldrich synchronized single process picker; Lummus Gyrator cleaning, blending and distributing machine; Lummus dustless, steel blending feeder; Rihco humidifiers, which are said to require less than half the power required for other atomizer humidifiers.

**In attendance:** A. P. Aldrich, Jr., Robert Aldrich, Roy Perry, J. E. Brown.

**Alemite Div. of Stewart-Warner Corp., Chicago, Ill. Booth 405.**

**Exhibit:** Alemite lubricating systems and Alemite petroleum products.

**In attendance:** C. I. Kraus, D. L. Stewart, R. Sandiford, W. D. Grannan.

**Allen Mfg. Co., The, Hartford, Conn. Booth 113-A.**

**Exhibit:** Allen hollow set screws, Allen Pressur-Formd socket head cap screws, Allen Tru-Ground shoulder screws, Allen Tru-Ground dowel pins,

square head set screws, flat head cap screws, pipe plugs.

**In attendance:** W. G. Taylor, Jr., Julian Sargent, E. S. Grant, C. J. Meister.

**Allentown Bobbin Works, Inc., Allentown, Pa. Booth 316-A.**

**Exhibit:** Bobbins and spools for silk and rayon.

**In attendance:** Henry W. Mack.

**Allis-Chalmers Mfg. Co., Milwaukee, Wis. Booth 487.**

**Exhibit:** "Quick-Clean" motors, "Texrope" drives, motor control and centrifugal pumps. Newest types of variable speed spinning frame drives and the new all-in-one "Electrifugal" motor-pump for general industrial purposes.

**In attendance:** William Parker, other sales engineers.

**Allis Co., The Louis, Milwaukee, Wis. Booth 108.**

**Exhibit:** Electric motors.

**In attendance:** G. C. Gardner, C. Q. Mason, J. G. Green, L. F. Keely.

**Aluminum Co. of America, Pittsburgh, Pa. Booths 455-456.**

**Exhibit:** Aluminum parts for textile machinery and plant equipment. Continuous moving picture on aluminum. In conjunction with American Magnesium Corp.

**In attendance:** C. Braglio.

**American Air Filter Co., Inc., Louisville, Ky. Booths 317-318-319.**

**Exhibit:** Electro-Matic air filter and other air cleaning products.

**In attendance:** J. R. McConnell, H. J. Noles.

**American Brass Co., The, Waterbury, Conn. Booths 450-451-452.**

**Exhibit:** Anaconda condenser tubes, copper water tubes, brass pipe, electrical conduit of Everdur and copper, large diameter seamless copper tubes, printing rollers, welded fabricated fittings of Everdur or copper, Anaconda welding rods, welded Everdur hot wa-

ter storage tanks.

**In attendance:** H. F. Braman, R. S. Burr, Howard Coe, H. M. Peck, Elmer T. Lang.

**American Crayon Co., The, Sandusky, O. Booth 325.**

**Exhibit:** Kayson floor sealer and finish, Empire mill crayons, A. C. industrial adhesives and glues.

**In attendance:** John Hester, W. G. Youse.

**American Cyanamid & Chemical Corp., New York City. Booth 490.**

**Exhibit:** A full line of textile specialties including softeners, sizes, finishers, oils and penetrants, as well as acids and chemicals.

**In attendance:** Hugh Puckett, E. J. Adams, J. D. Hunter, E. H. Driver, J. B. Button, C. B. Suttle, Jr., Paul Haddock, H. W. Rose, M. J. Wixson.

**American Lumber & Treating Co., Chicago, Ill. Booth 436.**

**Exhibit:** Lumber products suitable for use in the textile industry.

**American Magnesium Corp., Cleveland, O. Booths 455-456.**

**Exhibit:** Magnesium warp beams and other lightweight parts for textile machinery. In conjunction with Aluminum Co. of America.

**In attendance:** H. Menking.

**American Moistening Co., Providence, R. I. Booth 132.**

**Exhibit:** Devices for the supply, maintenance and regulation of applied humidification, evaporative cooling apparatus and regulation.

**In attendance:** Marvin McCall, J. E. Boston, B. A. West, W. L. Johnson, J. D. Johnson, H. B. Bradford, F. J. Orme.

**American Mutual Liability Ins. Co., Boston, Mass. Booth 245.**

**Exhibit:** Reception booth.

**In attendance:** A. A. Hyatt, Wesley H. Heston, Wm. I. Blanton.

**American Rolling Mill Co., The, Middletown, O. Booths 462 and 463, Annex No. 1.**

**Exhibit:** Stainless steel grades used in textile equipment.

**In attendance:** R. A. Dadisman, J. H. Faunce, C. M. Broome, W. F. Elliott, Fred Mayhew, R. M. Nelson.

**American Safety Table Co., Inc., Reading, Pa. Booths 227-228.**

**Exhibit:** American individual stands, American electric drives, American safety tables, American collar pressing machines, American cuff pressing machines.

**In attendance:** E. W. Hollister, John W. Fite, Max T. Voigt.

**American Steel & Wire Co., Cleveland, O. Booth 122.**

**Exhibit:** In conjunction with U. S. Steel Corp. Subsidiaries, which see.

**American Wool & Cotton Reporter, Boston, Mass. Booth 208.**

**Exhibit:** Textile Publishers.

**Armstrong Cork Co. (Industrial Division, Textile Products Section), Lancaster, Pa. Booth 140.**

**Exhibit:** Cork cots for spinning and card room rolls, assembling and buffing machinery (for use with cork and/or synthetic cots), Accotex (synthetic rubber) cots; loom supplies: take-up roll covering, temple rolls, clutch discs, brake and let-off strips; cots and strips for covering silk and rayon twister rolls; Accotex long draft aprons.

**In attendance:** J. V. Ashley, W. T. Coker, D. N. Herr, H. H. Jordan, D. P. Paiste, F. G. Richards, D. T. Starkey, G. C. Baer, T. L. Hill, W. B. Tucker.

**Armstrong Machine Works, Three Rivers, Mich. Booth 428.**

**Exhibit:** Armstrong steam traps and steam type humidifiers.

**In attendance:** O. E. Ulrich, Allan T. Shepherd, Wm. T. Harding, Jr., T. H. Rea.

**Arnold, Hoffman & Co., Inc., Providence, R. I. Booth 464.**

**Exhibit:** Ahcobond, Ahcoflex, Ahcovel, Ahcoprint, Synthravon, Ahcospun size.

**In attendance:** Edwin H. Arnold, Thomas H. Roberts, Joseph A. Bryant, Chester L. Eddy, W. Chester Cobb, Harold T. Buck, W. T. Smith, Phil Lavoie, J. R. Brown, John H. Graham, Erwin L. Laxton.

**Ashworth Bros., Inc., Fall River, Mass. Booth 120.**

**Exhibit:** Card setting machines running; samples of different types of card clothing; metallic wire.

**In attendance:** R. C. Ashworth, Jr., E. H. Isenhour, J. M. Reed, C. B. Thomason, R. B. Wilson, A. E. Johnston.

**Atlanta Brush Co., Atlanta, Ga. Booths 453-454.**

**Exhibit:** Industrial brushes, shipping supplies.

**In attendance:** T. C. Perkins, G. B. Snow, W. C. Perkins, G. E. Daub.

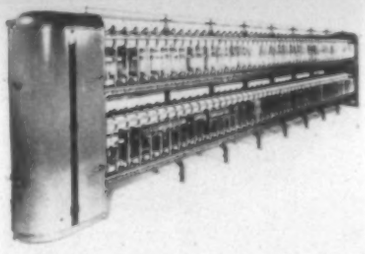
**Atlanta Paper Co., Atlanta, Ga. Booth 340.**

**Exhibit:** Special textile cases, corrugated shipping containers, textile wrapping papers, twine, printed and plain tape and all other miscellaneous paper items used by textile mills.

**In attendance:** J. R. Belsinger, K. V. Robinson, J. C. Shutze, T. L. Elliott, Frank Olver, Frank Benton.

**Atwood Machine Co., Stonington, Conn. Booth 486.**

**Exhibit:** New Atwood "5B," Model 10, in operation on combination yarn. New Atwood Twister, Model 110, operating on combination yarn with bobbin take-up; another same model producing headless packages, one deck on combination yarn and one deck twisting direct from the new Nylon pirn. New heavy duty twister operating on large rayon packages.



**In attendance:** F. R. Hoadley, W. M. Fraser, H. M. Bailey, F. Sails, K. B. Chapman, A. E. Winslow, E. R. Dunklee.

**Bahan Textile Machinery Co., Inc., Greenville, S. C. Booths 137-138.**

**Exhibit:** Textile machinery parts, loom parts, gears, motor pinions, etc.

**In attendance:** Wm. H. Bahan, Edw. F. Bahan, Geo. F. Bahan, Paul J. Bahan, J. C. Williamson, N. M. Neal, W. R. Rothrock, W. H. Maudling, Robert Greer, J. C. Funderburk, C. L. Green, T. H. Boyd.

**Bahnson Co., The, Winston-Salem, N. C. Booths 216-217-218.**

**Exhibit:** The New Bahnson Anniversary Humiduct with noiseless fan; the Westinghouse Precipitron for electrically filtering soot and smoke from the air; the New Bahnson Adjustomatic atomizer; the Bahnson Humivent economical air conditioning.


**In attendance:** S. C. Stimson, DeParx Stimson, I. L. Brown, R. B. Crosland, F. S. Frambach, D. D. Smith, A. H. Bahnson, Jr.

**Barber-Colman Co., Rockford, Ill. Booths 247-248-249.**

**Exhibit:** The Barber-Colman system of spooling and warping in operation; portable warp tying machines for tying cotton, wool or rayon; moisture content control for slashers and tenters; temperature and humidity controls; Uni-Flo grilles and registers for engineered air distribution.

**In attendance:** J. H. Spencer, N. H. Alford, S. R. McElroy, E. W. Rogers, F. D. Taylor, James Savage, W. P. Turner, B. A. Peterson, R. G. Ross, L. M. Howell, L. L. Lideen, Wm. M. Norton.

**Bassick Co., The, Bridgeport, Conn. Booth 437.**

**Exhibit:** Line of truck casters.

**Bemis Bro. Bag Co., Brooklyn, N. Y. Booth 355.**

**Exhibit:** "Tite-Fit" burlap tubing, "Tite-Fit" cotton tubing.

**In attendance:** E. P. Fuller, W. O. Howell, C. D. Wagner.

**Benjamin Electric Co., Des Plaines, Ill. Booth 113.**

**Exhibit:** Various reflectors, diffusers, fluorescent lamp units, and other lighting equipment for textile mills.

**In attendance:** D. M. Woodside and others.

**Birch Bros., Inc., Somerville, Mass. Booth 221.**

**Exhibit:** Cloth de-twisting machine for removing twists after wet processing in rope; "Supreme" butt-seam portable sewing machine; improved curved bar rubber expander; angular guide; "Coronation" chain stitch sewing machine; yarn balance.

**In attendance:** Harold W. Birch, John C. Cosby, Percy L. Cooke.

**Blue Ridge Glass Corp., Kingsport, Tenn. Booth 304.**

**Exhibit:** Demonstration on the glare reducing and heat absorbing qualities of Aklo glass, which is manufactured by the company.

**Bond Co., Chas., Philadelphia, Pa. Booth 448.**

**Exhibit:** Entire line of leather specialties and belting, featuring Bondaron special tanned leathers which they manufacture into check straps, harness straps, lug straps, pickers, binder straps, jack straps, and other items. Supplies for cotton, woolen and worsted, silk and rayon, and carpet weavers. Also flat and round leather belting, and a few other items, such as flexible couplings, truck casters, gears, speed reducers, etc.

**In attendance:** C. Carter Bond, Harold C. Smith, John C. Turner.

**Bowen-Hunter Bobbin Co., East Corinth, Vt. Booth 225.**

**Exhibit:** In conjunction with the McLeod Companies, which see.

**In attendance:** Ernest Bowen.

**Bradley Washfountain Co., Milwaukee, Wis. Booths 305-306-307.**

**Exhibit:** One "3-in-a-Group" Shower, one 54" Stainless Steel Washfountain (in actual operation); one 36" Precast Stone Washfountain; one 36" Enameled Iron (De Luxe model) Washfountain; one Type "S" Precast Marble Drinking Fountain.

**In attendance:** R. G. Owen, Wm. H. Shepard.

**Bristol Co., The, Waterbury, Conn. Booths 431-432.**

**Exhibit:** Time-temperature recorder controller for dye vats; wet- and dry-bulb psychrometer; humidity recorder controller with hygroscopic element; Portable Recording Thermometers and Thermo Humidigraphs.

**In attendance:** H. E. Beane, H. A. Van Hala, J. N. Swarr, F. A. Faust, S. I. Lyons.

**Brown Instrument Co., Philadelphia, Pa. Booths 420-421-422.**

**Exhibit:** Indicating, recording and control instruments for the regulation of temperature, pressure, flow, humidity, liquid level, etc., in textile processes. Feature slasher speed control.

**In attendance:** E. B. Evleth, L. Morton Morley, K. R. Knoblauch, R. A. Weikel, A. E. Krogh, D. C. Culver, V. P. Tassi, S. T. Herr, A. H. Koch, W. D. Doublas, Jr., and B. W. Cullen.

**Bunting Brass & Bronze Co., The, Toledo, O. Booth 479.**

**Exhibit:** Cast Phosphor bronze bearings; Cast Phosphor bronze bushings; Graphited Oil-less bearings and bushings; Precision machined bearing bronze bars; Babbitt metals.


**In attendance:** G. H. Adams, W. C. Bracken, G. N. Fisher, D. C. Spaulding, K. I. Homan.

**Butterworth & Sons Co., H. W., Philadelphia, Pa. Booths 123-124.**

**Exhibit:** One laboratory padding machine; one heavy duty micro-set padder.

**In attendance:** Harry W. Butterworth, Jr., DeHaven Butterworth, J. Ebert Butterworth, J. H. Zahn, W. E. H. Bell, W. S. Rowley.

**Carborundum Co., The, Niagara Falls, N. Y. Booths 312-313.**

**Exhibit:** Aloxite brand fillet cloth grooved and Aloxite brand texalox cloth.

**In attendance:** R. C. Clements, W. H. Wylie, Jr.

**Carnegie-Illinois Steel Co., Pittsburgh, Pa. Booth 122.**

**Exhibit:** In conjunction with United States Steel, which see.

**Charlotte Leather Belting Co., Charlotte, N. C. Booth 317-A.**

**Exhibit:** Leather belting, textile leathers, long draft aprons.

**In attendance:** J. E. Beattie, Fred R. Cochrane, Jack L. Harkey, J. E. McKenna, R. M. Pindell, Jr.

**Chemical Processing Co., Charlotte, N. C. Booth 338.**

**Exhibit:** Textile chemicals—Chemwax, the synthetic Japan wax; the Pendet group of penetrants and detergents; the Chempromine group of finishing compounds; warp sizes.

**In attendance:** Ralph N. Jones, Henry H. Latham.

**Clinton Co., Clinton, Iowa. Booths 205-206.**

**Exhibit:** Textile starches.

**In attendance:** Luther Knowles, Grady Gilbert, George B. Moore, Boyce L. Estes, Gordon W. Enloe, Harold P. Collier.

**Clover Leaf Mfg. Co., Honesdale, Pa. Booth 110-B.**

**Exhibit:** Bobbin and spools for the textile industry; also steaming crates, pin boards, cone gauges, stainless steel and fibre reel caps, and special redraw brackets.

**In attendance:** R. P. Bennett, W. A. Kennedy, J. Stein.

**Cocker Machine & Foundry Co., Gastonia, N. C. Booth 488-A.**

**Exhibit:** High speed section beam warper, drum type; high speed section beam warper, spindle drive type; high speed ball warper; high speed spindle

drive warper for flat knit fabrics.

**In attendance:** D. L. Friday, T. F. Suggs, E. K. Whitener, J. C. Bodansky.

**Coffing Hoist Co., Danville, Ill. Booth 119.**

**Exhibit:** Ratchet lever hoists, spur geared hoists, electric hoists, trolleys.

**In attendance:** Ford L. Dwiggins.

**Colt's Patent Fire Arms Mfg. Co. (Electrical Div.), Hartford, Conn. Booth 102-A.**

**Exhibit:** Electrical safety switches and motor controls, including the new

line of Colt Manual and Magnetic motor controls.

**In attendance:** L. H. McClure, A. B. Fink, Neill Lassiter.

**Columbia Steel Co., San Francisco, Cal. Booth 122.**

**Exhibit:** Textile steel and alloys.

**Continental-Diamond Fibre Co., Newark, Del. Booth 106.**

**Exhibit:** Diamond vulcanized fibre boxes, trucks, barrels, cans, baskets and special material handling equipment; Diamond fibre, Dilecto and Celoron non-metallic loom parts.

**In attendance:** C. L. Simmons, F. W. Vandiver, H. T. Nelson.

**Corn Products Sales Co., New York City. Booth 457.**

**Exhibit:** Reception booth.

**In attendance:** Jno. R. White, Fred Mueller, A. A. Harden, Harry Wilmerding, J. C. Alexander, C. G. Stover, W. R. Joyner, L. H. Kelley, J. Alden Simpson, T. A. Mott, Jr., Ralph Miller, Earl King.

**"Cotton," Atlanta, Ga. Booth 408.**

**Exhibit:** Textile publication.

**Courtney, Dana S., Co., Chicopee, Mass. Booth 225.**

**Exhibit:** In conjunction with McLeod Companies, which see.

**Crompton & Knowles Loom Works, Worcester, Mass. Booths 134-5-6.**

**Exhibit:** An 82", W3 convertible woolen loom with filling mixer; a 72", C4 loom weaving a spun rayon and wool blend (60/40); a 56", S5 loom weaving a rayon crepe; a 52", S5 loom running on spun rayon. All machines in operation. Also an unmounted, double lift, double cylinder jacquard, and other items, such as spring jacks.

**In attendance:** F. W. Howe, Jr., R. M. Deal, S. P. V. Desmond, J. C. Irvin, Lewis Burgess, A. L. Joslin, Rufus S. Frost, John Richardson, J. F. Molloy, H. R. Wing.

**Crouse-Hinds Co., Syracuse, N. Y. Booth 471.**

**Curtis & Marble Machine Co., Worcester, Mass. Booths 238-239.**

**Exhibit:** Duplex sewing and winding machine, automatic shearing machine, electronic control for inspecting machine, float thread shear revolver, steel bladed beater. Feature new heavy, high production model of Duplex sewing and winding machine, which is used for supplying automatic shear with large diameter rolls of rayon. This machine will make rolls of cloth as large as 38" diameter; heavy duty clutch and brake; individual tension devices; individual clutches on winding rolls; high speed sewing machine head.

**In attendance:** W. F. Woodward, F. C. Bryant, R. L. Marble, Frank MacKay.

**Cutler, Roger W., Boston, Mass. Booth 111.**

**Exhibit:** Cutler Sak tape, Everwear temple rolls, Everlastic rolls, long-draft aprons, Lewis pickers, nylon threads.

**In attendance:** Roger W. Cutler, Lewis C. Briggs, 3rd, Byrd Miller, M. Bradford Hodges, Jesse Hodges, A. C. Boyd.

**Cyclone Fence Co. Booth 122.**

**Exhibit:** In conjunction with U. S. Steel Co.

**Dayton Rubber Mfg. Co., The, Dayton, O. Booth 145.**

**Exhibit:** Running tests showing resistance of Dayco cots, arbors, and roll coverings under high temperatures, humidity and freezing conditions, as well as running test to show Dayco resistance to grooving under all temperatures. Also Dayton Thorobred pickers, reversible drop-box pickers, lug straps, holdups, wiper blades and other loom supplies.

**In attendance:** J. O. Cole, R. L. Wetzel, H. M. Bacon, J. D. Hershey.

**Decorated Metal Mfg. Co., Brooklyn, N. Y. Booth 352.**

**Exhibit:** Textile spools.

**In attendance:** Theodore Dewhurst, Edward M. Mulford.

**Denman Tire & Rubber Co., Warren, O. Booths 465-466.**

**Exhibit:** In conjunction with Terrell Machine Co., which see.

**Diagraph-Bradley Stencil Machine Corp., St. Louis, Mo. Booths 453-454.**

**Exhibit:** Diagraph stencil machines, Bradley stencil machines, fountain markers, fountain brushes, Stikfast label pasters, stencil board, stencil ink and other complete shipping room supply items.

**In attendance:** John G. Burton, G. E. Daub, Clif Perkins, Jr.

**Diehl Mfg. Co., Elizabethport, N. J. Booths 231-232.**

**Exhibit:** A general line of textile spinning frame and loom motors, general purpose motors for textile mill application, creel fans, air circulators and portable bench grinders.

**In attendance:** P. N. Thorpe, H. B. Thorpe, Daniel Woodhead, W. J. Jockers, S. G. Boyd, A. R. Booth.

**Dow Chemical Co., The, Midland, Mich. Booth 483-A.**

**Exhibit:** Dowmetal magnesium alloys in fabricated and semi-fabricated form.

**In attendance:** O. E. Grant, L. H. Stewart.

**Draper Corporation, Hopedale, Mass. Booths 128-129-130.**

**Exhibit:** New X-2 model high speed loom, shown for first time; heavier, sturdier than present X-model; modeled on the XD. XU model loom weaving No. 6 hard duck, shown for the first time. XD model loom weaving a striped acetate satin; XK model weaving a spun rayon twill; XP model weaving a heavy five-harness sateen. Display of improved loom repair parts with pattern numbers shown; spindles and rings, shuttles and shuttle eyes; temples and temple rolls and bobbins. Complete process of bobbin manufacture, from tree to mill, will be shown in pictures and descriptive titles projected in colors on a screen. Midget loom to be operated by Philipe Authier, weaving cloth 4" wide with 172 ends and 60 picks, running at 250 picks per minute. Bobbins are 1 3/16" long, shuttle 2½" long and 5/16" wide.

**In attendance:** B. H. B. Draper, B. H. B. Draper, Jr., E. N. Darrin, T. H. West, C. H. Draper, W. M. Mitchell, R. S. Brice, W. M. Brice, W. K. Child, T. Henderson, L. C. Lockman, R. W. Poole, C. L. Williams, W. P. Ellis, F. A. Ridenhour, S. A. Stone, C. H. Turner, C. H. Warren.

**DuPont Co., The (Finishes Div.), Atlanta, Ga. Booth 461.**

**Exhibit:** "Dulux" Mill White products, industrial and village products, penetrating floor finishes, glare reducing window finishes.

**In attendance:** S. W. Quisenberry, T. A. Seals, L. R. Collins, E. M. Hill, H. L. Norton.

**DuPont de Nemours & Co., E. I. (Rayon Div.), New York City. Booth 445.**

**Exhibit:** Collection of fabrics made of DuPont rayon.

**In attendance:** F. F. Hubach, O. F. Long, P. F. Haas, J. M. Ulmer, H. M. Peters, G. F. Bracket, Jr.

**Economy Baler Co., Ann Arbor, Mich. Booths 465-466.**

**Exhibit:** In conjunction with Terrell Machine Co., of Charlotte, N. C.

**Fafnir Bearing Co., The, New Britain, Conn. Booth 209.**

**Exhibit:** Ball bearings.

**In attendance:** S. D. Berg, C. A. Berg, A. G. Laughridge, H. B. Chamberlin, W. D. Davis.

**Fairbanks, Morse & Co., Chicago, Ill. Booth 449.**

**Exhibit:** No. 11912 scale with dial and printomatic attachment, No. 1128 scale with precision indicator, No. 11790 bench dial scale, special textile dye room scale, No. 902 even balance scale, sectionalized motor, Copperspun rotor, totally enclosed textile motor, Builtogether pump, sectionalized split case pump, Deepwell turbine head with sectional bowl assembly.

**In attendance:** Harry Neal Baum, L. J. Maguire, H. J. Gable, Roy Meeks, E. W. Morgan, J. B. Terrell, W. O. Pittman, T. G. Young, G. R. Bollinger, O. O. Lewis.

**Fairchild Publications, New York City. Booth 308.**

**Exhibit:** Textile publications.

**Faultless Caster Corp., Evansville, Ind. Booth 200.**

**Exhibit:** Casters of all kinds for use in the textile trade.

**In attendance:** John H. Davis, W. T. Sutherland.

**Fibre Specialty Mfg. Co., Kennett Square, Pa. Booth 478.**

**Exhibit:** Hard vulcanized fibre seamless roving cans—Kennett, Leatheroid, Standard "No Waste" and Laminar brands; fibre and Steel-Klad fibre textile trucks and boxes; new raised angle platform doffing trucks with tight and loose boxes, either Steel-Klad fibre or plain fibre; special textile Dreadnaught trucks, including the new Streamliner; complete line of textile casters.

**In attendance:** R. G. Henderson, G. B. Scarlett, R. A. Craig, H. R. Chandler, B. C. Plowden, Ralph Woods.

**Finnell System, Inc., Elkhart, Ind. Booth 110.**

**Exhibit:** Mill floor maintenance systems including combination floor scrubbing machines that in one operation scrub, rinse and pickup. See the new Finnell "Mill Special Combination." Inspect the machine for your most congested floor areas. Finnell floor engineers will be present to also discuss Finnell cleaners—powders, solvent or liquid soap—floor fillers, sealers and preservatives.

**In attendance:** W. S. Finnell, R. M. Bliss, J. L. Anderson, L. E. Arnold, J. T. Core, A. P. Sears.

**Fiske Bros. Refining Co. (Lubriplate Div.), Newark, N. J. Booth 334.**

**Exhibit:** Moving display of the lubricants used for principal lubrication application in the textile industry. This display consists of the various types of bearings, gears and other parts employed in mechanical motion.

**In attendance:** A. L. Day, J. Fred Welch, and representatives from Lubriplate distributors in the Southern district.

**Fletcher Works, Philadelphia, Pa. Booth 108-A.**

**Exhibit:** Latest model Apex twister operating on weaving yarns. The improved Fletcher Duplex double-twister will also be on display, handling combination yarns. A 30" Fletcher "Standard" extractor will complete the exhibit.

**In attendance:** R. J. Bartholomew, F. W. Warrington, Warren Egee.

**Foster Machine Co., Westfield, Mass. Booths 229-230-231.**

**Exhibit:** Model 86 nylon sizing machine, Model 75-C nylon, rayon, cotton and silk winder, Model 102 high speed winder.

**In attendance:** Webb Durham, F. F. Stange, H. A. Cadle, E. C. Connor, F. P. Brooks, E. P. Dodge, John Salva.

**Foxboro Co., The, Foxboro, Mass. Booths 426-427.**

**Exhibit:** Indicating, recording and controlling instruments for process variables. Temperature controllers, humidity controllers, portable recorders for temperature and humidity, control systems for pneumatic loading of squeeze-roll machines, elapsed time-temperature controllers, dual temperature controllers, flow meter (with transparent chambers to reveal mechanism). Giant portfolio of photographs of Foxboro instrumentation in textile mills.

**In attendance:** Ralph Hayden, Jr., E. S. Lawson, W. W. Barron, E. G. Cullings, R. W. Allen, John Larson, G. E. Clark.

**Friden Calculating Machine Co., San Leandro, Calif. Booth 314.**

**Exhibit:** Friden calculating machine.

**In attendance:** R. M. McGillivray, W. J. Barbour, Jr., H. B. Harper, H. C. Harper, Bruce Harper, O. P. Busby.

**Fyans, A. F., Fall River, Mass. Booth 353.**

**Gates Rubber Co., Denver, Colo. Booths 341-342.**

**Exhibit:** Gates Vulco ropes, V to V drives, V-flat drives, and quarter turn drives. Also Flexcord belts, cone and evener belts, hose of all types, and a line of loom pickers and accessories.

**In attendance:** N. V. Nutting, D. J. Broadhurst, C. L. Bowman, Frank Traver, E. G. Van Hook, V. G. Brookshire, S. R. Brookshire, Nelson Proctor, O. C. Williams.

**General Electric Co., Schenectady, N. Y. Booths 116-117-118.**

**Exhibit:** Feature an operating stroboscope checking color register on cloth, marking the first showing of this new application. Instantaneous scanning of cloth patterns regardless of the speed at which the cloth is proceeding through the printing machine. An all electric adjustable speed drive operating from alternating current. Tri-clad motor; a loom motor; an open screenless textile motor; Type AE1B air circuit breaker, limit switches, relays, combination switches and other control equipment. Welding equipment.

**In attendance:** W. W. Cronkhite, A. P. Mansfield, R. B. Hanna, E. D. McKellar, R. S. Paden, R. H. Jackson, F. C. Alexander, J. H. Fowler, E. A. Hancock, F. C. Smith.

**General Electric Co. (Incandescent Lamp Dept.), Cleveland, O. Booth 115.**

**Exhibit:** New Mazda "F" and Type RF fluorescent lamps suitable for lighting in the textile industry. Emphasis will be placed on new lighting practices.

**In attendance:** D. R. Grandy, George Taylor, T. M. Moore, F. E. Keener, C. N. Knapp, G. E. Parks, A. L. Reas.

**Gilmer Co., L. H., Philadelphia, Pa. Booth 225.**

**Exhibit:** A running display unit of various transmission belt drives, specializing on belts used in the textile industry: V-belts, Streamliner V-belting, Kable Kord flat belting, licker-in belts, spinner belts, gainer belts, cone belts.

**In attendance:** W. W. Conard, R. F. Luber.

**Graton & Knight Co., Worcester, Mass. Booth 404.**

**Exhibit:** Research leather belting with pivoted motor base. Haritan tex-


tile leathers, check straps, pickers, harness straps, etc. Special friction

oak, mill strapping leather. Velvitan rub aprons.

**In attendance:** D. A. Ahlstrand, F. W. Tisdell, Oliver Landis, Hugh Black, Edwin L. Morris, Dan R. Jewett.

**Greenville Textile Supply Co., Greenville, S. C. Booth 225.**

**Exhibit:** In conjunction with McLeod Companies, which see.

**Gulf Oil Corp., Pittsburgh, Pa. Booth 211.**

**Exhibit:** Petroleum products will be displayed in relation to their application to the textile industry. The achievement of more efficient lubrication, resulting in economies in plant operation, time saving, and consequent increased production will be dramatized.

**In attendance:** A. O. Buntin, L. T. Daughtridge, H. C. Roane, R. O. Mohley, A. C. Wright, E. G. Williams.

**H & B American Machine Co., Pawtucket, R. I. Booth 112.**

**Exhibit:** Long draft spinning frame in operation on cut rayon staple; 48 spindles, 4" gauge; new system of long draft especially for synthetics. High draft speeder operating on cotton; 36 spindle, 8x4, 5-roll drafting. New model wet twister, 48 spindles, 5" gauge.

**In attendance:** Elmer McVey, E. L. Martin, Kingsland Dunwoody, J. C. Martin, C. M. Powell, Fred Dickinson, Fritz Zweifel, Frank Hunt, Samule R. Walsh, Geo. Repass, Geo. W. Murphy, Herman J. Jones, J. T. Miller, Roland Agsmondhalgh.

**Hercules Powder Co., Wilmington, Del. Booths 331-332-333.**

**Exhibit:** Motion picture entitled "Naval Stores Production and Use."

**In attendance:** Frank Rapp, Wm. A. Haines, George Bossert.

**Hershey, Henry H., Greenville, S. C. Booth 406.**

**Exhibit:** Roller leather, calf and sheepskin, sold under trade names of Spinna Calf and Aclo Brand sheepskin. Introducing No. 458 Spinna Calf, a full chrome tannage with properties that are said to enable greater ease in cementing, plus better drafting.

**In attendance:** Henry H. Hershey, John Gilfillan.

**Hollister, E. W., Spartanburg, S. C. Booths 227-228.**

**Exhibit:** Merrow machines and American safety tables. Featured will be the Merrow butted seaming machines and the Merrow Class A high speed overedging and overseaming machines for finishing all varieties of textile fabrics and garments. Sewing machine tables and power transmission of American Safety Table Co., with emphasis upon their clutch as incorporated in both their line shaft drives and individual sewing machine electric drives. Dress shirt collar and cuff forming machines.

**In attendance:** E. W. Hollister, L. H. Tallmadge, R. B. Moreland, M. T. Voigt.

**Hope Webbing Co., Providence, R. I. Booth 225.**

**Exhibit:** In conjunction with Greenville Textile Supply Co., which see.

**Houghton & Co., E. F., Philadelphia, Pa. Booth 423.**

**Exhibit:** Cotton warp sizes, cotton softeners, wetting-out agents, detergents, rayon sizes and softeners, ray-

on finishing oils, textile soaps, boil-off agents, textile mill lubricants, leather strapping, textile mill belting.

**In attendance:** W. H. Brinkley, C. B. Kinney, T. E. Hansen, S. P. Schwoyer, D. O. Wylie, L. L. Brooks, J. J. Reilly, V. C. Shadden, J. W. Byrnes.

**Howard Bros. Mfg. Co., Worcester, Mass. Booths 242-243.**

**Exhibit:** Card clothing for cotton, woolen, worsted, and asbestos mills. Hand stripping cards, and heddles for weaving.

**In attendance:** Guy L. Melchor, Carl M. Moore, J. Floyd Childs, Harry C. Coley, Neal A. Mitchell.

**Huntington & Guerry, Inc., Greenville, S. C. Booth 219.**

**Exhibit:** Hunington & Guerry trouble proof industrial electrical installations.

**In attendance:** R. S. Huntington, DuPont Guerry, Jr., J. H. Howard, J. R. Rutledge, J. A. Griffeth.

**Hyatt Bearings Div., General Motors Sales Corp., Harrison, N. J. Booth 222.**

**Exhibit:** Hyatt roller bearings as used in cotton, silk, rayon or wool preparatory, weaving and finishing machinery.

**In attendance:** W. L. Iliff, H. K. Porter, H. M. Carroll, J. M. Grady, F. U. Naughton, E. P. O'Neill.

**Hygrade Sylvania Corp., Salem, Mass. Booth 488.**

**Exhibit:** Miralume fluorescent units, Hygrade fluorescent lamps, and Hygrade incandescent lamps.

**In attendance:** Charley Pyle, Jim Duffey, Robt. M. Rouse, M. S. Chauncey, J. E. Whipkey.

**Industrial Steels, Inc., Cambridge, Mass. Booth 428.**

**Exhibit:** Stainless steel sheets, bars, angles, pipe, tube and fittings which are carried in stock. Photos showing complete stainless stock to take care of rush requirements of the textile field.

**In attendance:** Richard C. Cunningham, Robert E. Mason.

**International Business Machines, New York City. Booths 335-336.**

**Exhibit:** Time recording, indicating and signalling equipment and its applications in payroll work. Electromatic writing machine.

**International Filter Co., Chicago, Ill. Booths 322-323-324.**

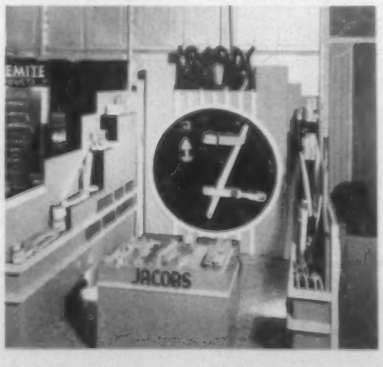
**Exhibit:** ASO chemical solution feeder with solenoid shut-off; No. 9 dry chemical feeder for alum; "Accelator" scene-in-action exhibit; blow-ups of installations at Scott Paper Co., National Container Corp., and Rayonier's, Inc.

**In attendance:** J. M. Kahn, C. H. Starling.

**International Salt Co., Inc., Scranton, Pa. Booths 315-316.**

**Jacobs Mfg. Co., E. H., Danielson, Conn., Charlotte, N. C. Booth 403.**

**Exhibit:** Reinforced Verybest canvas lug straps, reinforced roller cushion lug straps, imported Hairon leather check straps and loom strappings,




Jacobs hardwood products for looms, Jacobs Casteel and wire-reinforced dobby cords, Jacobs holdups.

**In attendance:** W. I. Bullard, E. J. Bullard, S. B. Henderson, Thomas Soucy, Jr., L. L. Froneberger.

**Jenkins Bros., New York City. Booths 440-441.**

**Exhibit:** A complete line of bronze, iron and steel valves.

**In attendance:** C. B. Yardley, H. J. Barnsley, E. L. Dean, E. C. Barrett.

**Johns-Manville, New York City. Booth 477.**

**Johnson Bronze Co., New Castle, Pa. Booths 443-B—444.**

**Exhibit:** Bronze bushings, bearings, bars, textile parts.

**In attendance:** I. M. Valentine, L. G. Klinker, T. E. Lyon.

**Johnson Corp., The, Three Rivers, Mich. Booth 489.**

**Exhibit:** The Johnson rotary pressure joint. A joint will be mounted on a rotating glass cylinder to show the flexibility of the joint and its ability to seal under pressure. The glass cylinder rotates and within it is a syphon pipe which operates to show the manner in which the syphon pipe disposes of condensate or water in a rotating cylinder. Water and compressed air is injected into the rotating cylinder so as to obtain the same effect as is obtained in condensing steam.

**In attendance:** Ralph Gotschall, R. O. Monroe, Allan T. Shepherd, William T. Harding, Jr.

**Kearny Mfg. Co., Inc., Kearny, N. J. Booths 480-485.**

**Exhibit:** Yarn conditioning machinery of latest construction for bobbin as well as cone conditioning; textile psychrometer; static card stripper; conditioning devices for high speed winders.

**In attendance:** H. E. Kresse, Walter P. Rutley, John Klinck, J. Alfred Lechler, Douglas A. Smith, J. H. Hodge.

**Keever Starch Co., The, Greenville, S. C., and Columbus, O. Booth 407.**

**Exhibit:** Victor mill starch in various fluidities.

**In attendance:** Charles J. Kurtz, James F. Kurtz, Claude B. Iler, Luke J. Castile, F. M. Wallace.

**Kidder Press Co., Inc., New York City. Booth 354.**

**Exhibit:** Chapman electric neutralizer.

**In attendance:** Wm. C. Glass.

**Lawlor Co., S. C., Chicago, Ill. Booths 301-302.**

**Exhibit:** Complete line of floor scrubbing and polishing machines, mopping tanks and mop wringers.

**In attendance:** Hiller A. Brim.

**Lazenby & Co., Inc., F. A., Baltimore, Md. Booth 244.**

**Exhibit:** Cop and butt winders, bobbin winders, mill accessories.

**In attendance:** Joseph D. Lazenby, O. R. Payne, Charles A. Bridener.

**Leyland Machinery Co., Inc., Thomas, Readville, Mass. Booth 460.**

**Exhibit:** Expander bars with malleable iron clutches for calenders, composition clutches for dry cans, starch mangles and water mangles with wings inverted which eliminates any forming of burrs to injure cloth, in getting more width, and taking out double edges, creases and wrinkles. Also rubber covered type especially adapted for light goods, rayons and silks.

**In attendance:** S. A. Mathews.

**Limerick Yarn Mills, Philadelphia, Pa. Booth 350.**

**Link-Belt Co., Chicago, Ill. Booth 220.**

**Exhibit:** Considerable portion of exhibit shown at World's Fair, including operating units of silent and roller chain drives and the Link-Belt P. I. V. gear variable speed transmission. Display of Link-Belt "Friction Fighter" bearing units.

**In attendance:** Horace Bowman, H. A. Mitchell, W. J. Nighbert, W. F. Hardcastle, G. F. Scarbrough.

**Lunkenheimer Co., The, Cincinnati, O. Booths 429-430.**

**Exhibit:** A complete line of bronze, iron, steel and corrosion resistant alloy valves, lubricators, oil cups, etc., for general use in the textile industry. Many sectioned valves will be included in the exhibit.

**In attendance:** E. Leonard Hertenstein, W. H. (Bill) Burkitt, E. Prentys Word.

**Macbeth Daylighting Corp., New York City. Booths 309-310.**

**Exhibit:** Macbeth BX86 cotton classing lamp; two new color matching skylights, Types BKX83 and BX826; latest development in fluorescent general lighting, viz., two tube 100 watt fixture.

**In attendance:** Norman Macbeth, F. F. Phillips.

**Mathieson Alkali Works, Inc., New York City. Booths 469-470.**

**Exhibit:** Feature Textone, a new development of the company for processing textiles; also liquid chlorine, caustic soda, soda ash, bicarbonate of soda, aqua ammonia, and H. T. H.

**In attendance:** Fred O. Tilson, J. R. Harrington, J. W. Ivey, R. C. Staples, M. K. Sanders, A. L. Dubeau, Z. N. Holler.

**McLeod Companies (McLeod Leather & Belting Co.), (Odell Mill Supply Co.), (Greenville Textile Supply Co.), Greenville, S. C., and Greensboro, N. C. Booths 225, 225-A, 225-B, 226.**

**Exhibit:** Products of the following companies: Walker Mfg. Co., L. H. Gilmer Co., Hope Webbing Co., Bowen-Hunter Bobbin Co., Dana S. Courtney Co., The Louis Allis Co., Wheeler Reflector Co., Frank E. Paige Co., Cutler Hammer Co.

**In attendance:** W. T. McLeod, D. R. Dickson, Karl A. Fisher, C. E. Bailes, C. Q. Mason, T. M. Bailey, R. B. Dorman, Hugh Graham, J. W. Williams, E. A. Brigham, W. L. Brigham, Gene Barnhardt, R. T. Osteen, W. W. Conard, Ernest Bowen, C. P. Parks, George Garnener, Leonard Black, C. M. McClure, C. M. Richardson.

**Merco-Nordstrom Valve Co., Pittsburgh, Pa. Booth 416.**

**Exhibit:** Line of Nordstrom lubricated plug valves for handling dyestuffs and chemicals.

**Merrow Machine Co., Hartford, Conn. Booths 227-228.**

**Exhibit:** Trimming and overseaming, overedging, plain crochet and shell stitch machines. In conjunction with E. W. Hollister.

**In attendance:** E. W. Hollister, R. B. Moreland, L. H. Talmadge.

**Mexico Refractories Co., Mexico, Mo. Booth 337.**

**Exhibit:** Missouri specialty products: Furnas-Crete, first quality castable refractory; Mono-Fibrik, plastic fire brick; Hiloset, high temperature bonding mortar; Mexicast, plastic refractory concrete; Cell-Crete, lightweight castable refractory; Baffle-Crete, for building refractory monolithic baffles. Missouri fire brick: Jay Bee, super quality, non-spalling, slag resisting fire brick; Morex, first quality, flint clay fire brick; M-26, 2600° insulating fire brick; M-22, 2200° insulating fire brick.

**In attendance:** E. C. Tinsley, J. R. McNamara, J. R. Turpin, P. P. McGarity, P. R. Garretson, Delmus Broome.

**Miller Co., The, Meriden, Conn. Booths 424-425.**

**Exhibit:** Fluorescent lighting fixtures.

**In attendance:** J. J. Perry, Jr., G. G. Harney.

**Mitchell & Smith, Inc., Detroit, Mich. Booth 142.**

**Exhibit:** Cork roll coverings.

**In attendance:** F. Robins Mitchell, E. G. Krebs, Dial F. Sweeny, Philip E. Whitehead, William E. Stewart.

**Monroe Calculating Machine Co., Inc., Orange, N. J. Booths 346-347-348.**

**Exhibit:** Monroe adding-calculators, adding-listing and bookkeeping machines, check writers and signers.

**In attendance:** J. C. Fleming.

**Myles Salt Co., Ltd., New Orleans, La. Booth 484.**

**Exhibit:** Percolator (salt dissolver).

**In attendance:** J. C. Drake, W. A.

Levins, E. R. Ravenel, Wm. G. Ware.

**National Carbon Co., Cleveland, O. Booth 141.**

**Exhibit:** New "National" Model XV carbon arc accelerated testing unit for determining color fastness of dyed textiles, paper and similar products. Also carbon, graphite and "Karbate" products, including pipe and fittings, heat exchangers, carbon brackets, etc.

**In attendance:** H. F. Anderson, A. S. Callaway, L. E. Dequine, C. H. Christensen, M. J. Dorcas, C. G. Ollinger.

**National Ring Traveler Co., Providence, R. I. Booth 214.**

**Exhibit:** A full line of both spinning and twister travelers of quite a multi-


plicity of styles and weights. Also many patented developments.

**In attendance:** L. Everett Taylor, Otto V. Pratt, H. B. Askew, William S. Johnstone, Philip C. Wentworth.

**National Starch Products, Inc., New York City. Booths 326-327.**

**Exhibit:** Starches and sizes, printing gums, together with a display of fabrics finished with these products.

**In attendance:** Chester A. Gage, John J. Fitzgerald, Charles C. Ware, R. T. Clarke, J. W. Ogletree.

**New Departure Div. of General Motors Sales Corp., Bristol, Conn. Booth 472.**

**Exhibit:** General line of New Departure ball bearings, and featuring tredle roll bearings, developed especially for cam rollers in textile looms; vertical tension pulley bearings, two types; horizontal tension pulley bearing; miniature scale model of a New Departure upset forging machine in operation in the largest forge plant in the East.

**In attendance:** Rodger D. Brouwer, Leland D. Cobb, Ralph O. Wirtemburg, C. B. Beckwith, John P. Collins.

**N. Y. & N. J. Lubricant Co., New York City. Booth 109.**

**Exhibit:** General line of the company's product, "Non-Fluid" oil.

**In attendance:** Falls L. Thomason, J. R. Huss, F. D. Jacoway, J. A. Sorrells, Jr., W. C. Taylor, Fred W. Phillips, Jos. H. Bennis.

**Noone Co., Wm. R., Boston, Mass. Booth 488.**

**Exhibit:** Roller, clearer and slasher cloths.

**In attendance:** Geo. H. Bridge.

**Norma-Hoffmann Bearings Corp., Stamford, Conn. Booths 101-102.**

**Exhibit:** Complete line of precision ball, roller and thrust bearings. Feature the Norma-Hoffmann Cartridge bearing, which is a wide type totally sealed ball bearing for textile mill motor applications. Other types of sealed ball bearings will also be shown.

**In attendance:** E. W. Lawrence, W. G. Sargent.

**Oakite Products, Inc., New York City. Booths 329-330.**

**Exhibit:** Panel display depicting use of Oakite materials and methods on wide variety of mill and equipment maintenance jobs, such as controlling slime in wetting-out troughs; cleaning dye vats, loom harness, drying machine gears and frames, knitting machine heads and other equipment; steam cleaning equipment; cleaning floors and walls; removing scale and rust deposits from power plant equipment.

**In attendance:** J. J. Basch, Eustace Lingle, M. E. Withers, F. A. Hull.

**Odell Mill Supply Co., Greensboro, N. C. Booth 225.**

**Exhibit:** Mill supplies and machinery, in conjunction with The McLeod Companies.

**In attendance:** K. A. Fisher, C. E. Bailes, W. T. McLeod.

**Pabst Sales Co., Chicago, Ill. Booth 328.**

**Exhibit:** Exsize, a desizing material; Sizeflo-T, a starch modifier used for preparing warp size.

**In attendance:** W. A. Pardue.

**Paige & Co., Frank E., Boston, Mass. Booth 225.**

**Exhibit:** Roller cloth, slasher cloth, clearer cloth.

**In attendance:** See McLeod Companies.

**Parks-Cramer Co., Fitchburg, Mass. Booth 435-A.**

**Exhibit:** In special ell built for their use, Parks-Cramer will demonstrate their standard automatic airchanger with humidification by Parks Turbomatic self-cleaning atomizer humidifiers, controlled by Parks Psychrostat. Parks Turbo and Bunchless types of traveling cleaners will be exhibited. Also high duty humidifier, Parks Hygrostat humidity regulator, the Pettifogger (a portable centrifugal unit for offices, laboratories, etc.) and the Parks portable card stripper.

**In attendance:** R. S. Parks, P. A. McKittrick, Wm. B. Hodge, J. R. Henderson, W. H. Burnham, O. G. Culpepper, H. B. Rogers, W. J. Buck, W. B. Walker.

**Parks & Woolson Machine Co., Springfield, Vt. Booth 311.**

**Exhibit:** Manufacturers of shears and various other equipment for the cloth room.

**Penick & Ford, Ltd., Inc., Cedar Rapids, Iowa; New York City. Booths 438-439.**

**Exhibit:** Products from corn as used in the textile industry.

**In attendance:** D. P. O'Connor, H. A. Horan, P. G. Wear, O. R. Steffens, R. A. Lemieux, C. T. Lassiter, Guy L. Morrison, T. H. Nelson, W. J. Kirby, J. H. Almand, Glenn M. Anderson.

**Plibrico Jointless Firebrick Co., Chicago, Ill. Booth 442.**

**Exhibit:** Plibrico jointless firebrick, Plicast castable refracting material, Demon air-set and Hyrate refracting cements, Plibrico full-monolithic boiler settings, Plibrico air-cooled walls, Beco-Turner boiler buffles.

**In attendance:** Oliver L. Ballard, M. C. Ballard, Frank S. Rieder.

**Powers Regulator Co., The, Chicago, Ill. Booth 435.**

**Exhibit:** Automatic temperature and humidity controls, indicators, temperature recorders, diaphragm valves, self-contained temperature regulators, steam traps, pressure regulators and reducing valves, water mixing valves, steam and water mixers.

**In attendance:** Frank E. P. Klages, E. R. Foss, W. C. Heckeroth, Wm. Joyce, S. C. Minnich, M. A. Daugherty.

**Ragan Ring Co., Inc., Atlanta, Ga. Booth 127.**

**Exhibit:** Spinning rings, twister rings, and twister ring travelers.

**In attendance:** Ralph Ragan, J. Davis Willingham, J. H. Foard.

**Rayon Publishing Co., New York City. Booth 215.**

**Exhibit:** Textile publications.

**Reeves Pulley Co., Columbus, Ind. Booths 240-241.**

**Exhibit:** Various designs, models and controls of the Reeves variable speed transmission, vari-speed motor pulley and vari-speed motodrive; also the Reeves spinning frame drive and

a model machine on the order of a dye jig to demonstrate speed and tension control for winding and unwinding operations.

**In attendance:** C. L. Irwin, W. C. Erwin, D. M. McSpadden, James Cook, J. W. Vaughan, Jr.

**Robert Reiner, Inc., Weehawken, N. J. Booth 127-A.**

**Exhibit:** All-purpose high speed beaming machine, high speed creels, high speed tensions.

**In attendance:** Robert Reiner, Fritz Lambach, August Schoenenberg.

**Reliance Electric & Engr. Co., Cleveland, O. Booth 143.**

**Exhibit:** V-S drive and its application to the textile industry; new N. E. M. A. standard motor; A-C textile motor.

**In attendance:** James W. Corey, P. W. Arnold, K. S. Lord, A. L. Lemon, A. L. Pollard, W. H. Compton.

**Republic Steel Corp., Cleveland, O. Booths 473-474-475-476.**

**Exhibit:** Republic Enduro stainless steel will be featured by means of fabricated products depicting actual applications of this metal in the tex-

**In attendance:** C. C. Snyder, J. E. Goddavage, Geo. E. Hinkle, R. C. Hudson, S. M. Ewing.

**Rhoads & Sons, J. E., Philadelphia, Pa. Booths 245-246.**

**Exhibit:** Tannate-Rockwood drives and Gripotan belts.

**In attendance:** J. Edgar Rhoads, Richard H. Rhoads, John B. Rhoads, C. Robert Mitchell, A. Sidney Jay, J. Thomas Hoffman, Louis H. Schwoebel, Carl D. Wright, Samuel L. Allen, J. Warren Mitchell.

**Rice Barton Corp., Worcester, Mass. Booth 349.**

**R. I. Warp Stop Equipment Co., Pawtucket, R. I. Booth 131.**

**Exhibit:** Draper "X" model loom equipped with K-A electrical warp stop—in operation; a small model loom showing principle of K-A operation; sundry K-A parts and supplies and some samples of fabrics woven with K-A.

**In attendance:** Edwin C. Smith, William D. Whittaker, Wilburn L. Ferguson, Frank Quance.

**Ridge Tool Co., The, Elyria, O. Booth 413 and part 414.**

**Exhibit:** Ridgid pipe tools.

**In attendance:** W. L. Parcell, R. D. Fye.

**Roy & Son Co., B. S., Worcester, Mass., and Greenville, S. C. Booth 207.**

**Exhibit:** Featuring a two-wheel traverse grinder; other machines include one regular traverse grinder and a roller grinder. All machines to be running on a table which revolves itself.

**In attendance:** Jack Roy, Herman Schwager, Joe Moller.

**Saco-Lowell Shops, Boston, Mass. Booths 225-C—225-D—225-F—226-B.**

**Exhibit:** Section of J-3 roving frame showing spring weighting, continuous stripper, Vitritex rings, S-L improved tension pulley, various types of S-L spindles.

Roller top rayon card, Model 4 twister, Model 38 spinning frame with controlled draft on one side and "Z" system on the other, to be full scale machines in operation.

**In attendance:** W. F. Lowell, E. C. Gwaltney, James Strang, Warren Howe, U. E. Dubois, Wm. Wood, R. M. Jones, M. D. Shaffner, W. K. Dana, Walter Gayle, Alex. Davis, F. R. Lowe, H. P. Worth, John Graves, Miles Comer, Mac Walsh, R. M. Lindsay.

**Selig Co., The, Atlanta, Ga. Booths 301-302.**

**Exhibit:** Floor finishes, floor cleansers, Lawlor floor machines; disinfectants, insecticides, deodorants; sanitary products, janitor supplies.

**In attendance:** Charles Pearl, S. E. Weiss, A. D. Strauss, L. L. Strasburger, John E. Nelson, Hiller A. Brim.

**Seydel-Woolley & Co., Atlanta, Ga. Booths 320-321.**

**Exhibit:** A new model of their Twist-Setter conditioning machine and a revolutionary new principle conditioning machine for conditioning yarn on bobbins. Products: Seyco shuttle dressing, penetrants, and sizing compounds.

**In attendance:** Paul B. Seydel, Vasser Woolley, E. A. Scott, John R. Seydel.

**Shell Oil Co., Inc., New York City. Booth 483.**

**Exhibit:** Complete line of Shell textile oils, including both regular and special types for special application. Also industrial lubricants for other machinery such as steam power plants, deisels, motors, compressors, etc.; fuel oils, both domestic and industrial; naphthas, solvents and cresylic acids; specialties such as spot removers, Safety Kleanzit, furniture polish and handy oil.

**In attendance:** F. W. Spooner, C. B. Hoffman, J. Trexler.

**Sherwin-Williams Co., Philadelphia, Pa. Booths 401-402.**

**Exhibit:** Several interesting features on paints, particularly as relating to the textile industry.

**In attendance:** Emmet Steger, James A. Meacham, B. W. Clingan, G. L. Hehl, Harris Ford, James East, W. H. Lambeth, Jr., C. P. Jarden.

**Sinclair Refining Co., New York City. Booth 103-A.**

**Exhibit:** Textile mill lubricants.

**In attendance:** F. W. Schwettman and others.

**Singer Sewing Machine Co., New York City. Booths 232-233-234.**

**Exhibit:** Sewing machines and electrical equipment.

**In attendance:** J. P. Baiter, H. C. Morehouse, L. C. Molloy, J. C. Lewis, C. E. Cain, C. S. Womack, J. W. Daley, S. MacLerie.

**Sirrine & Co., J. E., Greenville, S. C. Booth 203.**

**Exhibit:** Information booth.

**In attendance:** Members of the firm.

**SKF Industries, Inc., Philadelphia, Pa. Booths 409-410-411.**

**Exhibit:** A complete line of ball and roller bearings, changeover units, spindles, tension pulleys, and transmission appliances.

**In attendance:** R. H. DeMott, R. C. Byler, B. F. Davis, R. W. Franklin, J. J. Haggerty, N. Miller, M. H. Courtenay, G. E. Allen, G. M. Boullion, C. N. Benson, H. A. Fonda, Dr. H. Styri.

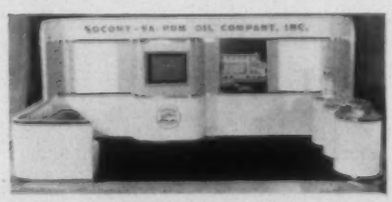
**Smith, Drum & Co., Philadelphia, Pa. Booth 133.**

**Exhibit:** Textile dyeing machinery.

**In attendance:** H. S. Drum, W. C. Dodson, J. E. MacDougall, J. M. Balentine.

**Socony-Vacuum Oil Co., Inc., New York City. Booth 343.**

**Exhibit:** Built around their motion




picture, "The Inside Story." Also color photographs illustrating various in-

dustrial uses of Gargoyle lubricants. Velocite oils for textile spindles, other lubricants for textile industry.

**In attendance:** C. G. Swank, F. H. Trewin, Bruce Cotten, E. T. Gregorie, G. W. Roberts, G. J. VanLiew, P. H. Gibbs.

**Sonoco Products Co., Hartsville, S. C. Booth 237.**

**Exhibit:** A complete line of paper carriers including cones, tubes, spools and cores; also roving cans, cork cots, Koroseal cots and underclearer rolls.

**In attendance:** W. B. Broadbent, W. A. Biggs, W. M. Carpenter, H. F. Gaffney, E. S. Reid, P. F. Williams.

**Southern Shuttles, Inc., Greenville, S. C. Booth 139.**

**Exhibit:** All types of power loom and hand loom shuttles, special shuttles for weaving all types of fabrics whether on plain hand threading or automatic bobbin changing looms, tension devices for spindle or automatic bobbin changing shuttles, demonstration of latest developed automatic shuttle eyes with adjustable tension devices, first demonstration of latest telescopic lock screw high speed loom shuttle bobbin grip.

**In attendance:** Louis P. Batson, J. J. Kaufmann, Jr., D. L. Batson, Sam Zimmerman, Jr., H. Raiford Gaffney, Barney Cole, Vernon A. Graff, C. W. Cain, H. P. Goodwin, I. G. Moore, O. T. Daniel.

**Spaulding Fibre Co., Inc., Camden, N. J. Booth 482.**

**Exhibit:** Roving cans, warehouse trucks, boxes, barrels, etc.; hard vulcanized fibre and laminated phenolic sheets, rods, tubes, and fabricated parts; gear blanks; textile parts, etc.

**In attendance:** A. L. Wright, G. F. Anderson, E. A. Marshall.

**Staley Mfg. Co., A. E., Decatur, Ill. Booth 415.**

**Exhibit:** Starches.

**In attendance:** C. H. Davidson, I. F. Wieland, A. R. Fuller, W. H. Randolph, Jr., L. A. Dillon, H. A. Mitchell, W. N. Dulaney, H. F. Taylor, Jr., W. T. Osteen, Geo. A. Dean.

**Standard Oil Co. of N. J., Columbia, S. C. Booth 481.**

**Exhibit:** Lubricating oils and greases.

**Steel Heddle Mfg. Co., Philadelphia, Pa. Booth 139.**

**Exhibit:** Flat steel heddles, harness frames, loom harness accessories, chrome hardening of textile machinery parts, Hendricks patented chain tester, new type reeding machine, pitch band and all metal reeds with regular and supreme quality wire, cotton harness, shuttles.

**In attendance:** J. J. Kaufmann, Sr., R. J. Freitag, J. J. Kaufmann, Jr., L. P. Batson, H. Raiford Gaffney, Vernon A. Graff, Claude W. Cain, Henry P. Goodwin, Davis Batson, Sam Zimmerman, Jr.

**Stein, Hall & Co., New York City. Booths 467-468.**

**Exhibit:** Corn, wheat, potato, and sweet potato starches. Featuring stroboscope and Viscosimeter to illustrate the methods used by the company's laboratories in solving textile sizing, finishing and printing problems.

**In attendance:** Ira L. Griffin, Edwin Stein, Edward Butts, Dave A. Truax, T. C. Davis, W. B. Strickland, W. N. Kline, Jr.

**Stodgill & Co., Atlanta, Ga. Booth 108-B.**

**Sturtevant Co., B. F., Boston, Mass. Booths 104-105.**

**Exhibit:** Rotary vaporizer, slasher exhaust fan, textile type speed heater, centrifugal compressor, industrial vacuum cleaner, dust blower.

**In attendance:** W. L. Hunken, H. J. Waggle, D. C. Hathaway, J. K. Jernigan, J. C. Marlow, H. C. Moore, Jr., H. W. Stevens, J. C. Thompson.

**Sullivan Hdw. Co., Anderson, S. C. Booth 488.**

**Exhibit:** Miralume fluorescent units, as made by Hygrade-Sylvania Corp., Salem, Mass.; slasher, clearer and roller cloths, as made by Wm. R. Noone & Co., Boston, Mass.; long draft aprons, as manufactured by Sullivan Hdw. Co., Anderson, S. C.; general line of textile mill supplies.

**In attendance:** W. C. Watkins, E. E. Lovern, J. G. Hamilton, S. B. Sullivan, George E. Bridge, Charley Pyle, M. S. Chauncey, J. R. Whipkey, Bob Kouse, Jim Duffey.

**Talcott, Inc., W. O. & M. W., Providence, R. I. Booth 412.**

**Exhibit:** Talcott Crown Wilson belt fasteners for all widths and thick-


nesses of leather belting, and will also show the special Talcott clinching belt fasteners for all types of flat rubber, fabric, canvas, and woven composition belting.

**In attendance:** M. W. Talcott, G. W. Little.

**Taylor-Colquitt Co., Spartanburg, S. C. Booth 210.**

**Exhibit:** Creosoted pine poles, cross arms, crossties, switch ties, piles, timbers, lumber, also green salt treated pine poles, treated with chromated zinc chloride and Celcure (pressure treated). Sections showing treated materials used in industrial construction, warehouses, residence, repairs, transmission lines, pole lines, trestles and highway bridge construction.

**In attendance:** M. P. Brown, Wilkins Cagle, Frank Kendrick, Jack Monroe, M. S. Hudson.

**Taylor Instrument Co., Rochester, N. Y. Booths 446-447.**

**Exhibit:** A line of indicating, recording and controlling instruments for temperature, pressure and humidity applicable to the textile industry. Featured will be the new Fulscope Process timer for processes which must be carefully controlled and exactly timed. Also a line of Taylor Fulscopes, the Taylor time schedule controller, the Taylor Flex-O-Timer, plus details on the Taylor system of slasher control.

**In attendance:** F. S. Ward, L. B. Swift, F. K. Taylor, E. J. Hanna, H. M. Barker, H. J. Barker, H. E. Hansen, J. A. Grant.

**Tennessee Coal, Iron & Railroad Co., Birmingham, Ala. Booth 122.**

**Exhibit:** In conjunction with U. S. Steel Co., which see.

**Terrell Machine Co., The, Charlotte, N. C. Booths 465-466.**

**Exhibit:** Bobbin box hoist, Type K bobbin stripping machine, bobbin conveyor-elevator, Type L bobbin cleaning machine, Termaco card room bobbins, spools, skewers, etc.; Denman loop and reversible pickers, Denman lug straps, holdups, and miscellaneous fabric loom parts.

**In attendance:** E. A. Terrell, J. J. Wilson, I. P. Graham, R. B. Smith, W. S. Terrell, J. E. Watts.

**Textile Age, New York City. Booth 303.**

**Exhibit:** Textile Publishers.

**Textile Bulletin, Charlotte, N. C. Booth 204.**

**Exhibit:** Textile Publishers.

**In attendance:** Junius Smith, David Clark, Ben Thomas, Ellis Royal, Ethel Thomas Dabbs, Roy Carey, R. J. Shinn.

**Textile-Finishing Machinery Co., Providence, R. I. Booth 114.**

**Exhibit:** Special form of dyeing and finishing machine.

**In attendance:** W. Taylor, B. B. Scantland, A. H. Goff, S. A. Moffitt.

**Textile World, New York City. Booths 223-224.**

**Exhibit:** Textile Publishers.

**Thompson & Son Co., The Henry G., New Haven, Conn. Booth 142-A.**

**Exhibit:** Demonstrating Milford flexible Rezistor hack saw blades, both hand demonstration and on power hack saw machines.

**In attendance:** T. E. Hereford.

**Tide Water Associated Oil Co., New York City. Booths 356-357.**

**Exhibit:** Tycol spindle oils and other lubricants for textile machinery.

**In attendance:** H. G. Mullen, R. H. Mariner, W. H. Young, H. D. Chase.

**Toledo Scale Co., Toledo, O. Booths 458-459.**

**Exhibit:** A selection of types from the complete line of Toledo scales for the textile industry. Includes heavy-duty floor scales, cotton lap scale, as well as several of the smaller models: Toledo Printweigh, producing printed weight records, also will be shown.

**In attendance:** W. F. MacKinnon, W. M. Randolph.

**Tolhurst Centrifugal Div., American Machine & Metals, Inc., East Moline, Ill. Booth 103.**

**Exhibit:** New 1,000 r.p.m. extractor —"Suprex."

**In attendance:** J. R. Angel, C. W. Anderson, W. C. Davis.

**U. S. Gutta Percha Paint Co., Providence, R. I. Booth 201.**

**Exhibit:** Barreled Sunlight interior and outside paint and enamel products. Actual paint-outs of Barreled Sunlight products recommended for textile factories and villages will be displayed. Also will be shown panels of the standard shades of major products of this type.

**In attendance:** Alexander S. West, John S. Palmer, L. K. Palmer, William M. Moore, C. L. Park, T. C. Roggenkamp.

**U. S. Ring Traveler Co., Providence, R. I. Booths 433-434.**

**Exhibit:** Various styles and sizes of ring travelers in both bronze and steel for the textile trade.

**In attendance:** William P. Vaughan, Oliver B. Land, Torrence L. Maynard, William H. Rose, Amos M. Bowen.

**U. S. Steel Corp., Chicago, Ill., and Pittsburgh, Pa. Booth 122.**

**Exhibit:** Display featuring the many

applications of stainless steel in the textile industries. Also exhibit of the various types and applications of seamless steel tubing, mechanical tubing and other pipe and tube applications.

**U. S. Textile Machine Co., Scranton, Pa. Booth 110-A.**

**Exhibit:** Modern throwing equipment for the weaving and knitting trade of rayon, silk or nylon.

**In attendance:** A. W. Thomas, P. J. Thomas, James Marshall.

**Universal Atlas Cement Co. Booth 122.**

**Exhibit:** In conjunction with U. S. Steel Corp.

**Universal Winding Co., Providence, R. I. Booths 234-235-236.**

**Exhibit:** A No. 99 Universals automatic bobbin winder; a Roto-Coner, winding miscellaneous open-wind packages of cotton yarn; a No. 150 machine for heavy cotton yarns.

**In attendance:** Robert Leeson, E. O. Smith, A. R. Breen, T. L. Cotter, R. L. Chisholm, E. R. Swanson, I. E. Wynne, R. M. Mauldin, J. W. Stribling.

**Veeder-Root, Inc., Hartford, Conn. Booth 107.**

**Exhibit:** Pick counters, hank counters, yardage counters, cut meters, miscellaneous counters of all kinds used in the textile industry.

**In attendance:** Graham H. Anthony, John H. Chaplin, A. E. Kallinich, R. W. Bailey, Edwin Howard, J. V. Verner, P. W. Coleman.

**Victor Ring Traveler Co., Providence, R. I. Booth 250-B.**

**Exhibit:** Reception booth.

**In attendance:** E. R. Jerome, R. L. Smith, T. L. Richie, B. F. Barnes, Jr., W. L. Hudson, J. McD. McLeod, N. H. Thomas, J. A. Hull.

**Wabash Appliance Corp. (Birdseye Lamp Sales Div.), Brooklyn, N. Y. Booth 351.**

**Exhibit:** Complete line of incandescent lamps, pure silver reflector lamps for textile plant lighting, infra-red heat drying lamps.

**In attendance:** T. F. McByrne, N. L. Neuman.

**Walker Mfg. Co., Philadelphia, Pa. Booth 225.**

**Exhibit:** Heddles, heddle frames.

**In attendance:** R. T. Osteen, F. W. Hollingsworth, Jr., L. M. Johnston.

**Watson-Williams Mfg. Co., Millbury, Mass. Booths 125-126.**


**Exhibit:** Their complete line of shuttles, heddle frames, heddles and shuttle eyes, including a number of improvements and developments.

**In attendance:** Charles A. Dodge, Harold E. Goff, Hubert J. Watson, E. V. Wilson.

**Wellman Co., The S. K., Cleveland, O. Booth 350.**

**Exhibit:** Velvetouch Bimetallic friction material for all types of clutch and brake applications on textile machinery and other types of industrial machines.

**In attendance:** J. R. Nurney, W. E. Canfield, Alton A. White, Mr. Cummings, Mr. Parham.

**Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Booths 417-418-419.**

**Exhibit:** Westinghouse motors, switches, lighting and lamps, etc.

**In attendance:** Thomas Fuller, T. C. Kelley, C. B. Stainback, S. M. Anson, J. B. Parks, J. W. Allison, J. H. Reeves, O. S. Williams, M. A. Land, G. D. Bowne, C. W. Drake, S. A. Bobe, C. L. Speake, W. W. Ballew, R. R. Shedd, J. W. Brooks, R. M. Davis, E. C. Delano, A. W. Rose, E. S. Lammers, F. D. Snyder, S. R. Orem, Jr., R. E. Cawhern, W. C. Pugh, William Ballenger, D G. Sudderth, E. G. Forgy, C. G. Price, E. T. Farish, G. F. Begoon, G. W. Penney, John Lynch, B. L. Cathey, J. M. Staples.

**Wheeler Reflector Co., Boston, Mass. Booth 225.**

**Exhibit:** Industrial type fluorescent fixtures.

**Whitin Machine Works, Whitinsville, Mass. Booth 251.**

**Exhibit:** Super-draft roving frame, long draft spinning frame, Model H comber, Whitin-Schweiter automatic bobbin winder, Bi-Coil drawing frame.

**In attendance:** E. Kent Swift, William H. Hoch, Robert J. McConnell, William H. Porcher, Robert I. Dalton, Mason P. Thomas, B. B. Peacock, I. D. Wingo, M. J. Bentley, Murray W. Keeler.

**Whitinsville Spinning Ring Co., Whitinsville, Mass. Booth 202.**

**Exhibit:** Spinning and twister rings and accessories.

**In attendance:** William P. Dutemple, H. Ross Brock.

**Yale & Towne Mfg. Co., The, Philadelphia, Pa. Booth 144.**

**Exhibit:** Center control high lift tilting fork electric industrial truck; Yale Load King Hydraulic hand lift truck; Midget King light duty electric chain hoist.

**In attendance:** R. S. Kerr, Carl Moeller, R. Newman Davis.

# CRAMERTON MILLS

INCORPORATED

*Fine Cottons—Yarns and Cloths*

CRAMERTON, N. C.

# TALCOTT

## BELT FASTENERS

FOR LEATHER, RUBBER, FABRIC, *and* COMPOSITION BELTING

BELT MAN LUKE *Says:*
INSIST ON THE ORIGINAL
TALCOTT PACKED IN THE
BLUE BOX


LOOK FOR BELT MAN LUKE
AT THE GREENVILLE SHOW
BOOTH 412 IN THE ANNEX

BUY FROM YOUR REGULAR DEALER
BUT SPECIFY TALCOTT THE ORIGINAL BELT FASTENER
SOLD BY ALL LEADING SOUTHERN MILL SUPPLY DEALERS

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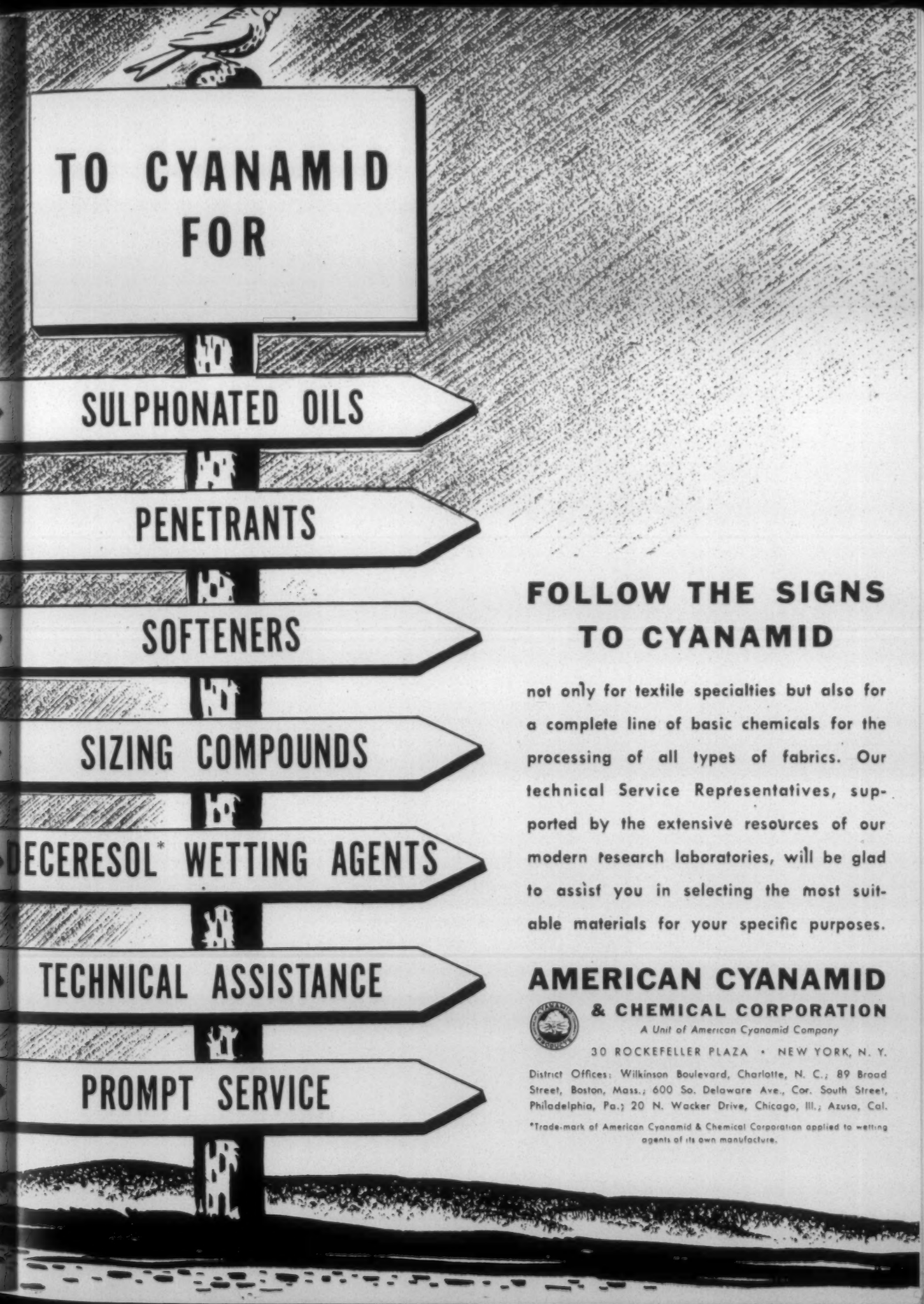
91 SABIN STREET PROVIDENCE, RHODE ISLAND

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not only for textile specialties but also for a complete line of basic chemicals for the processing of all types of fabrics. Our technical Service Representatives, supported by the extensive resources of our modern research laboratories, will be glad to assist you in selecting the most suitable materials for your specific purposes.

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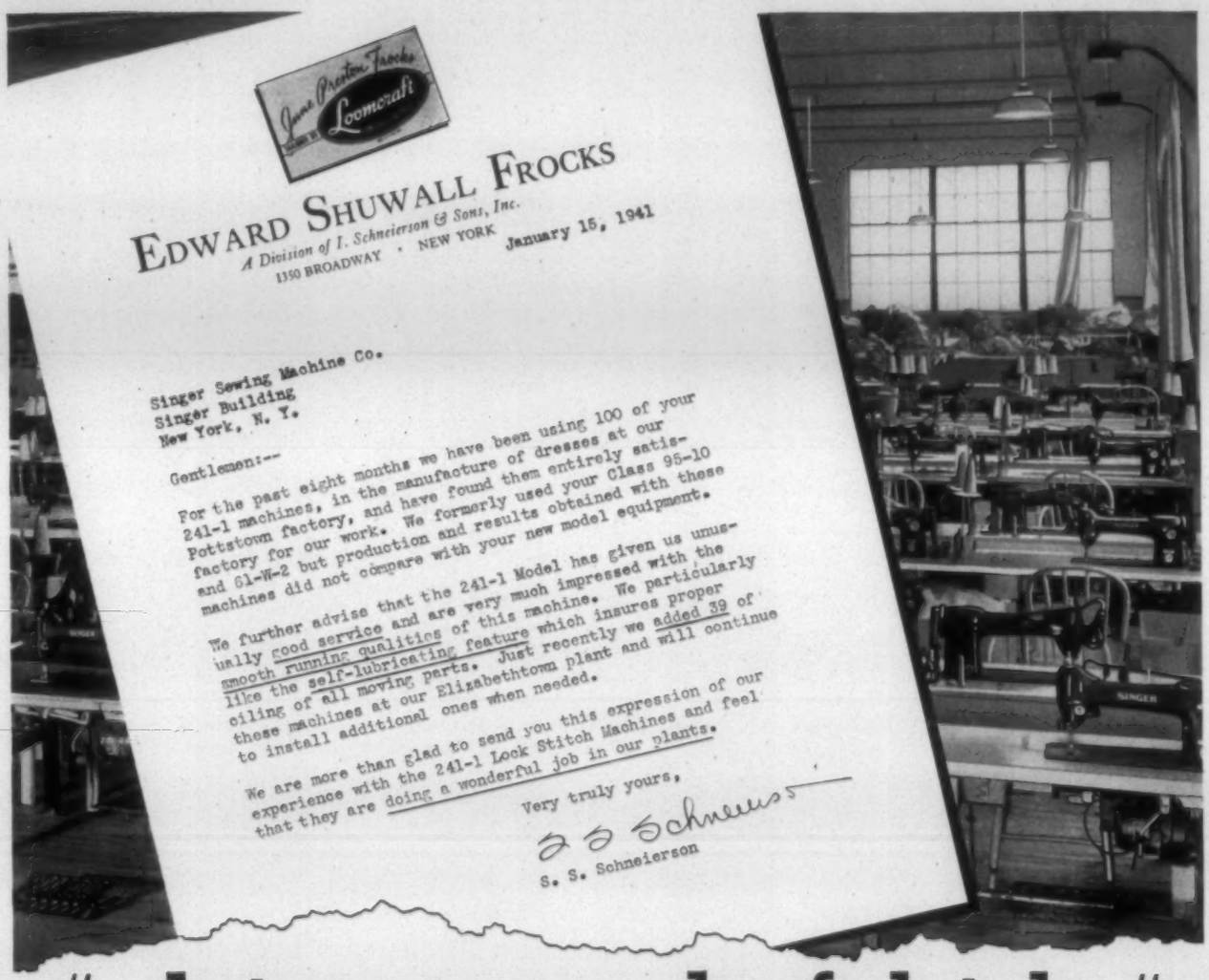

Jane Pratt Frocks
Loomcraft

EDWARD SHUWALL FROCKS
*A Division of I. Schneierson & Sons, Inc.*
1350 BROADWAY · NEW YORK

January 15, 1941

Singer Sewing Machine Co.
Singer Building
New York, N. Y.

Gentlemen:--

For the past eight months we have been using 100 of your 241-1 machines, in the manufacture of dresses at our Pottstown factory, and have found them entirely satisfactory for our work. We formerly used your Class 95-10 and 61-W-2 but production and results obtained with these machines did not compare with your new model equipment.

We further advise that the 241-1 Model has given us unusually good service and are very much impressed with the smooth running qualities of this machine. We particularly like the self-lubricating feature which insures proper oiling of all moving parts. Just recently we added 39 of these machines at our Elizabethtown plant and will continue to install additional ones when needed.

We are more than glad to send you this expression of our experience with the 241-1 Lock Stitch Machines and feel that they are doing a wonderful job in our plants.

Very truly yours,

S. S. Schneierson

# "..doing a wonderful job.."

## AND AN ORDER FOR 39 MORE SINGER 241 MACHINES REAFFIRMS THIS OPINION

The above letter is but one of many received from manufacturers using the new high speed Singer class 241 machines. You, too, will find this outstanding machine an important factor in stepping up production and lowering costs in your plant.

Let us arrange a test of the Singer 241 in your own plant on your own work. Compare it job for job with any machine of its type and you will be convinced of its superiority. Contact the nearest branch of the Singer Manufacturing Trade Department and a test will be arranged without cost or obligation.

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**SEWING MACHINE COMPANY**
MANUFACTURING TRADE DEPARTMENT
149 Broadway, New York, N. Y.
*Branches in all principal cities*

SINGER SEWING MACHINE CO.
149 Broadway, New York, N. Y.

Please send me a copy of the illustrated folder describing the Singer Class 241.

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# How BLUE RIDGE AKLO GLASS steps up MILL PRODUCTION!

Control of light, heat and humidity, in Southern Textile Mills, can now be improved economically with glass!

Glare is reduced, temperatures made comfortable, humidity kept more uniform, without the use of expensive construction and maintenance — all through the use of AKLO figured and wire, heat absorbing glass.

AKLO Frosted glare reducing glass breaks up harsh light rays into a diffused light of soft, uniform intensity over the working areas. By absorbing 97½% of the infra-red (heat) rays of the sun, AKLO reduces, as much as 48%, the solar heat entering through windows, skylights and transoms.

Mill operators find by installing Blue Ridge AKLO Glass, employees sustain higher productivity because:

- Glare fatigue is reduced.
- Errors and accidents avoided.
- Hand and eye co-ordination speeded.
- Employees are cooler in summer.
- Workers see better, feel better and work better.

A wide range of Blue Ridge Glass is available, made in the south for Southern Industrial plants. For assistance in solving the various conditions of your operations, write Sales Engineering Department, Blue Ridge Glass Corporation, Kingsport, Tennessee. Libbey-Owens-Ford Glass Company, exclusive distributors.

See for yourself how AKLO Glass reduces glare and absorbs heat. This, and many other demonstrations will show you positive proof how AKLO Glass can step up production in your mill!

•

*It will pay you to visit the*

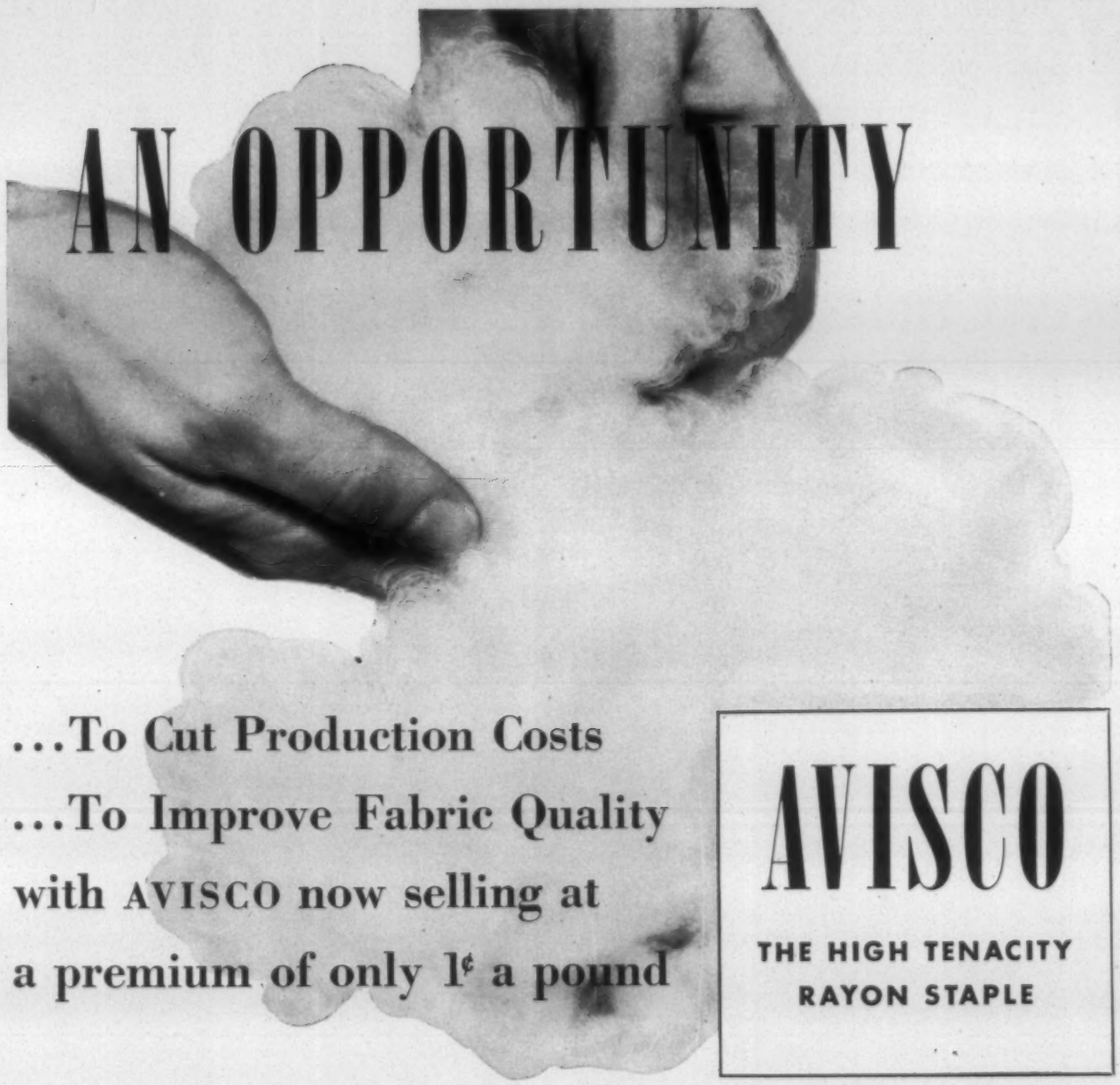
*Blue Ridge Glass Corporation*

*Display, Booth No. 304*

*(Balcony)*

*Southern Textile Exposition*

**BLUE RIDGE GLASS CORPORATION, KINGSPORT, TENN.**



# AN OPPORTUNITY

## ...To Cut Production Costs
## ...To Improve Fabric Quality
## with AVISCO now selling at
## a premium of only 1¢ a pound

**AVISCO**

**THE HIGH TENACITY RAYON STAPLE**

Prices of Avisco have gone down two cents a pound. They are now only one cent above the corresponding prices of standard Fibro.

Have you considered what this means to you?

It gives you the opportunity to use this strong staple wherever strength is important. In shirtings, sports fabrics, fine yarns, and in fabrics subjected to exacting conditions of dyeing and finishing. For example, it has made the difference between a launderable material and one that must be dry cleaned or washed by hand.

Because of its added strength and good running qualities, Avisco offers you worth-while advantages in production . . . advantages which can help you hold costs within profitable limits. Avisco enables you to produce fabrics of superior wearing qualities and greater saleability. Send for information.

HOW MUCH STRONGER IS AVISCO? Compared with yarns of standard rayon staple, yarns spun from Avisco are as much as 30% stronger dry, and as much as 36% stronger wet, depending on count, denier, and staple. It is available for cotton, worsted, and silk spinning in lengths from 1 3/16" to 5", in 1.25, 1.50, and 3 denier. It is an exclusive product of American Viscose Corporation. WRITE TODAY FOR COMPLETE FACTS.

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*World's Largest Producer of Rayon Yarn*

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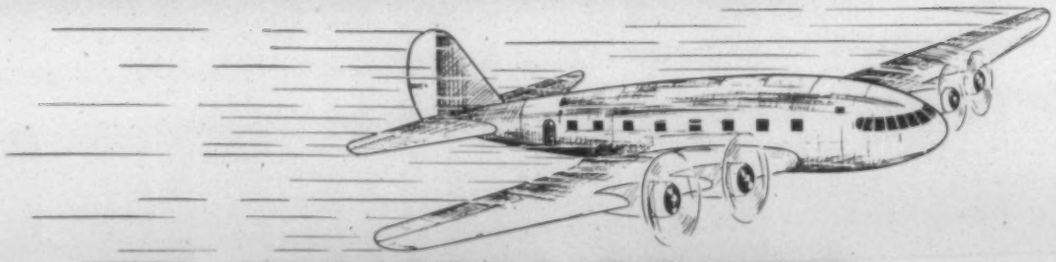
PLANTS AT: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Parkersburg, W. Va.; Nitro, W. Va.; Meadville, Pa.; Front Royal, Va.

CROWN TESTED AND APPROVED RAYON FABRIC

# FLETCHER



## the HIGH SPEED LINE!

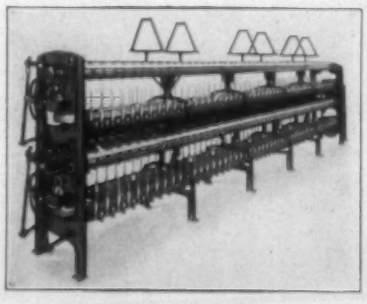
**Looms for weaving narrow fabrics.**
**Throwing Machinery for Silk and Rayon.**
**Textile Extractors for drying fibers and fabrics of all kinds.**

### "APEX" TWISTER with Unit Control

The New Fletcher Twister embodies thoroughly proven principles of engineering and design.

"Unit Control" a compact, self-contained unit which controls both twist and traverse from one end, is a Fletcher development with many obvious advantages.

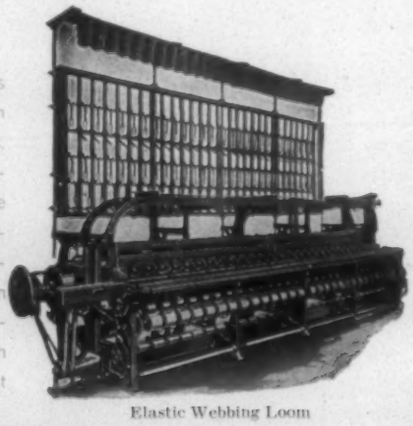
Standard equipment includes "Oilwell" spindles, holding a *year's supply* of cool, clean oil; adjustable spindle swings; pressed steel take-up roll driven by spindle belt; sliding motor drive.



The "Apex" Twister

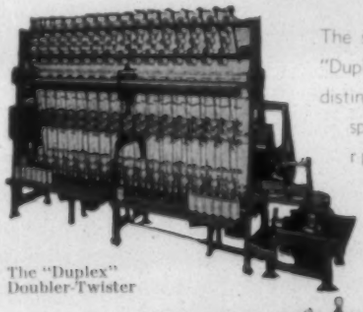
### FLETCHER LOOMS

Made by the world's largest specialists in narrow fabric looms. Fletcher Looms embody many exclusive superiorities, affording increased production at minimum cost. Fletcher engineers, familiar with all operations are at your service.



Elastic Webbing Loom

### "DUPLEX" DOUBLER-TWISTER



The "Duplex" Doubler-Twister

The superiority of the Fletcher "Duplex" results from its many distinctive features. Spindle speeds as high as 10,000 r.p.m. are obtained with self-lubricating rings. "Oilwell" spindles are standard equipment.

### FLETCHER "STANDARD" EXTRACTOR

The "Standard" Extractor

This open top, medium-sized machine for smaller batches is built to exacting Fletcher standards. Ball-bearings, interlocking safety cover, V-belt motor drive, stainless steel basket, safety steel casing and automatic timing device are featured in this compact streamlined unit.

### FLETCHER "WHIRLWIND" EXTRACTOR

The "Whirlwind" Extractor

Large capacity, unusual self-balancing and all around performance are outstanding features of the "Whirlwind", the most modern type of high-speed extractor. It requires no pit, and is readily accessible all around the basket. It is the only extractor with automatic hydraulic brake and "finger tip" control! Available with exceptionally HIGH BASKET SPEEDS.

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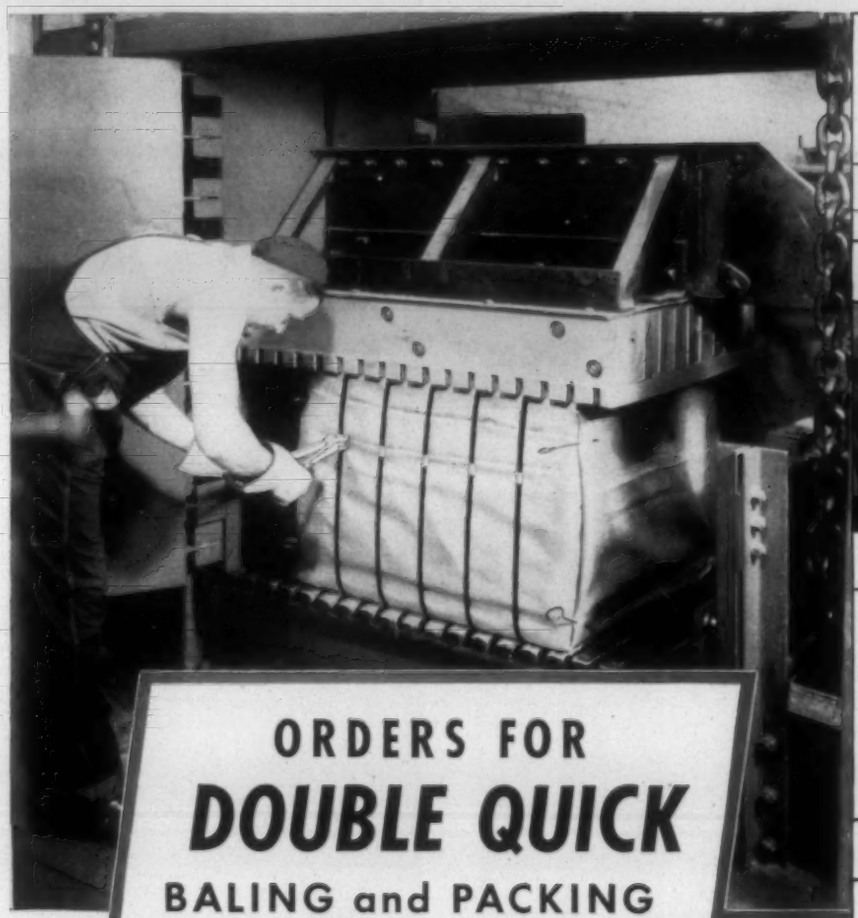
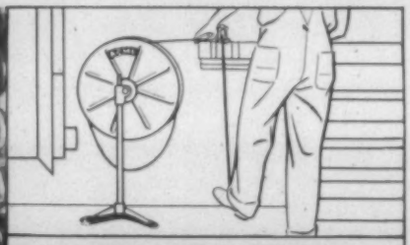
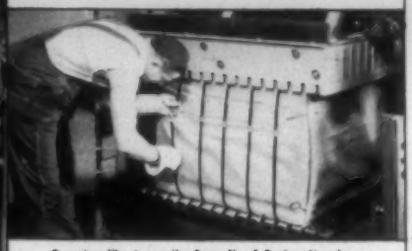


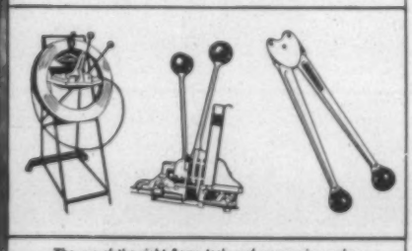
# ORDERS FOR DOUBLE QUICK BALING and PACKING call for *Acme Steelstrap*



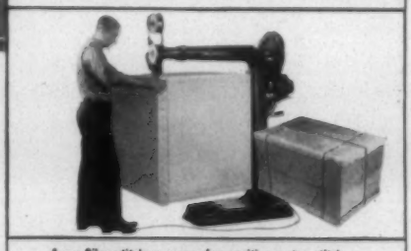
Acme Steelstrap or Bale Ties on coil holder being cut to desired length for baling.



Operators like to use the Acme No. 9 Sealer. It makes a strong sealed joint quickly with minimum effort.



The use of the right Acme tools and accessories makes a fast job even faster.



Acme Silverstitchers assure fast positive carton stitching. And when steelstrapped, cartons can often be classed as bales for freight savings


- There's one sure way to meet the textile industry's present speed-up requirements — use Acme Bale Ties and Acme Steelstrap.

Acme Bale Ties and Seals, applied with Acme sealing tools not only permit *faster* baling but also assure maximum protection and better looking bales. The clean, rust-resisting finish and smooth edges eliminate the possibility of damage.

Acme Ties in all widths and gauges are available in continuous length coils or cut lengths. There are Acme tools and accessories for every need — the Acme No. 9 Sealer, for example, is a favorite with millmen. It is a lightweight, heavy duty bale sealing tool which makes possible a stronger sealed joint with less effort. Mail the coupon for complete information.

*Acme Steelstrap meets Federal specifications on all textile shipments where strap is* required.

*Mail the coupon. Don't overlook an opportunity to speed-up your shipments* economically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# *Announcing...*

# ARMSTRONG'S NEW ACCOTEX LONG DRAFT APRONS

## FOR SPINNING AND ROVING FRAMES


FIVE years of research, laboratory testing, and field checking have preceded this important announcement! Before placing our Accotex Aprons on the market, we have made certain that we are offering you a *perfected* product—one that has decided advantages over aprons in common use today.

Armstrong's new Accotex Long Draft Aprons are made of a special compound which is both nonoxidizing and highly oil-resistant, reinforced with a preshrunk fabric interlining. They are available in all the sizes that are required for standard long draft systems on which aprons are employed.

### LOOK AT ALL THESE ADVANTAGES OVER ORDINARY TYPE APRONS!

**SEAMLESS**

There are no troublesome seams in Armstrong's Accotex Aprons to break open and shorten life.

**NONSTRETCHING**

A sturdy fabric interlining so reinforces the new Accotex Aprons that there is no loss of efficiency due to stretching while in operation. Hence, these aprons produce a stronger and more uniform yarn.

**UNIFORM**

Barring unusual accidents in the mill, each Accotex Apron will give consistently good service for the same length of time as every other Accotex Apron. The uniformity of these aprons is due to (1) the fact that they are made of a carefully formulated composition, the homogeneity of which cannot be duplicated with unfabricated products of Nature; (2) Armstrong Cork Company's precision manufacturing methods, which result in dimensions of the utmost accuracy.

**CLEAN RUNNING**

These aprons do not crack or become scuffed during operation. They assure you of cleaner running work—reduce waste to a minimum.

**REDUCED LAPPING**

The new Armstrong's Accotex Long Draft Aprons are not affected by changing temperatures or humidities. Consequently, they perform with a minimum of lapping under varied mill conditions.

**LONG LIFE**

More than 100,000 spindles have been equipped with Armstrong's new Accotex Aprons during the past two years. A large number of these aprons have already given 18 months' to two years' service and show very little evidence of wear. There is every indication that they will continue to give good service for a substantially longer period.

---

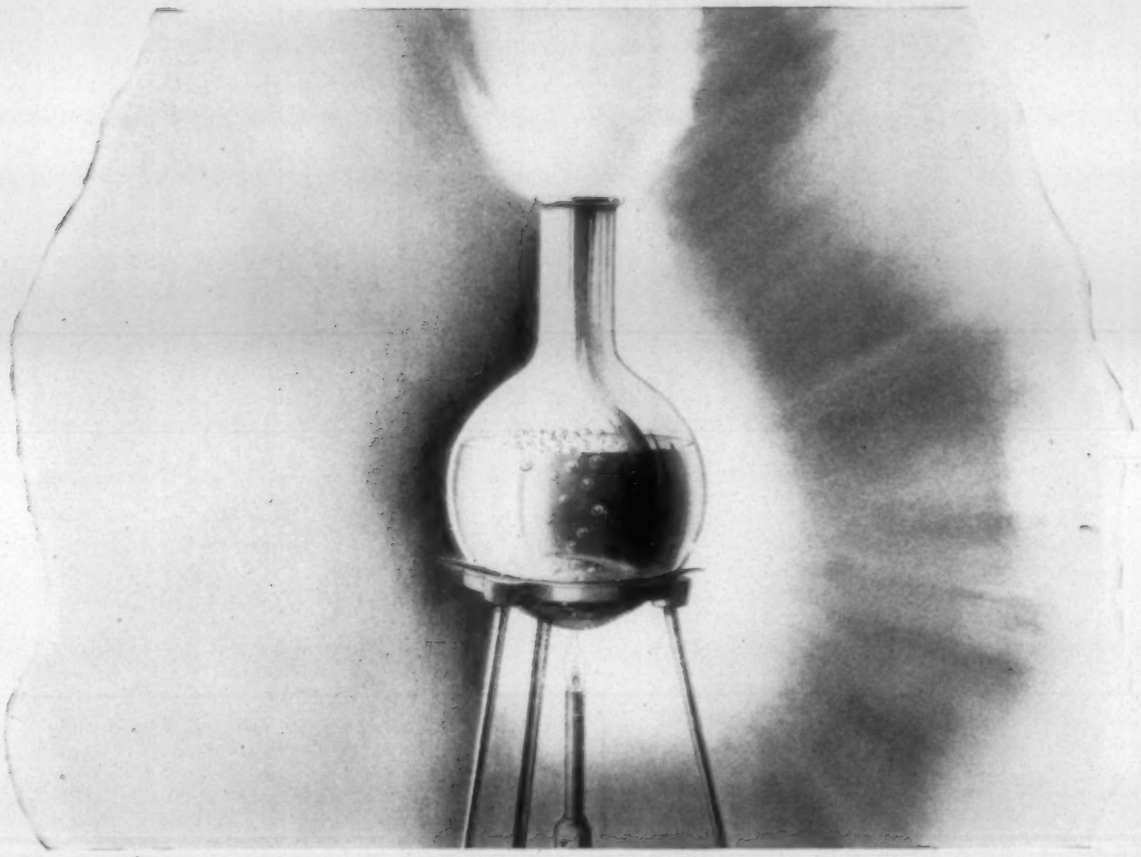
Although the initial cost of Armstrong's Accotex Long Draft Aprons is slightly higher than the average price currently quoted for ordinary aprons, the greater operating efficiency and the longer life of Accotex more than offset the small difference in first cost! Ask your Armstrong representative for full information—or write Armstrong Cork Company, Industrial Division, 921 Arch Street, Lancaster, Pennsylvania.

**VISIT BOOTH 140**
**SOUTHERN TEXTILE EXPOSITION**
*and see the new* **ACCOTEX APRONS**

**Made by the makers of**
**ARMSTRONG'S *Extra Cushion* SEAMLESS CORK COTS**

## ARMSTRONG CORK COMPANY

*Industrial Division • Textile Products Section • Lancaster, Pa.*



# A *flask boils in a Du Pont laboratory . . .*

## AND ANOTHER INDUSTRY MOVES FORWARD

In the past, many new chemical processes "just happened."

But today, new processes—new products seldom develop out of thin air. They are the result of organized research—the cumulative efforts of many chemists—all working towards the same objective. And then one day—a new product flashes on the scene—and industry is provided with new opportunities!

So, too, little is left to chance at Du Pont. Month after month, year after year, in good times and bad—scores of chemists are constantly at work. The pressing problems of today are handled swiftly and surely. Yet there is always an eye on the future. There's no stopping in the search for products and methods to help manufacturers improve processes, cut costs, develop new markets, and to use chemicals profitably.

This is the reason why in so many progressive plants the door is always open when the Du Pont man comes around. Isn't there some problem you would like to discuss with a Du Pont man? Remember, you can discuss it freely with him . . . knowing that he will keep your confidence. And you can rely on him to uphold Du Pont's standard of helpful practical service.

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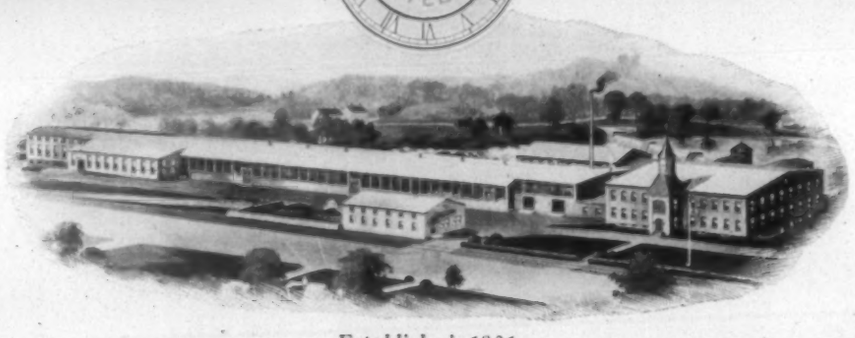


*Established 1831*

# Noone's Standard Slasher Cloths

Ask for NOONE'S SLASHER CLOTHS by name or style number.

Long experience in manufacturing Slasher Cloths and continuous experimenting have enabled us to produce several types of Slasher Cloth, each especially constructed to give best results on the particular kind of yarn to be sized.

The proper Slasher Cloth for each type of yarn means properly sized warps, less loom stops, easier weaving, more and better production, and lower cost. We can supply you the right cloth for your particular work.

On request, we will have our representative call and discuss Slasher Cloths with you. Try our Style No. 939 coarse All Wool Slasher Cloth for your coarser numbered yarns and our Style No. 40 Superfine Slasher Cloth when sizing fine numbers or rayon yarns.

We are the oldest manufacturers of Slasher Cloth in America. Our experience enables us to build a Slasher Cloth that will meet your most particular demand. Use NOONE'S SLASHER CLOTHS and be convinced.

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THE KEY TO GREATER PROFITS
Color and design appeal to the EMOTIONS. They give free play to ORIGINALITY. They emphasize STYLE and thus make price secondary. Add VARIETY, and you have the key to greater profits. ★ Colored yarns permit an infinite variety in color and design and Franklin Process, the oldest and largest package dyer, is your logical source of supply.
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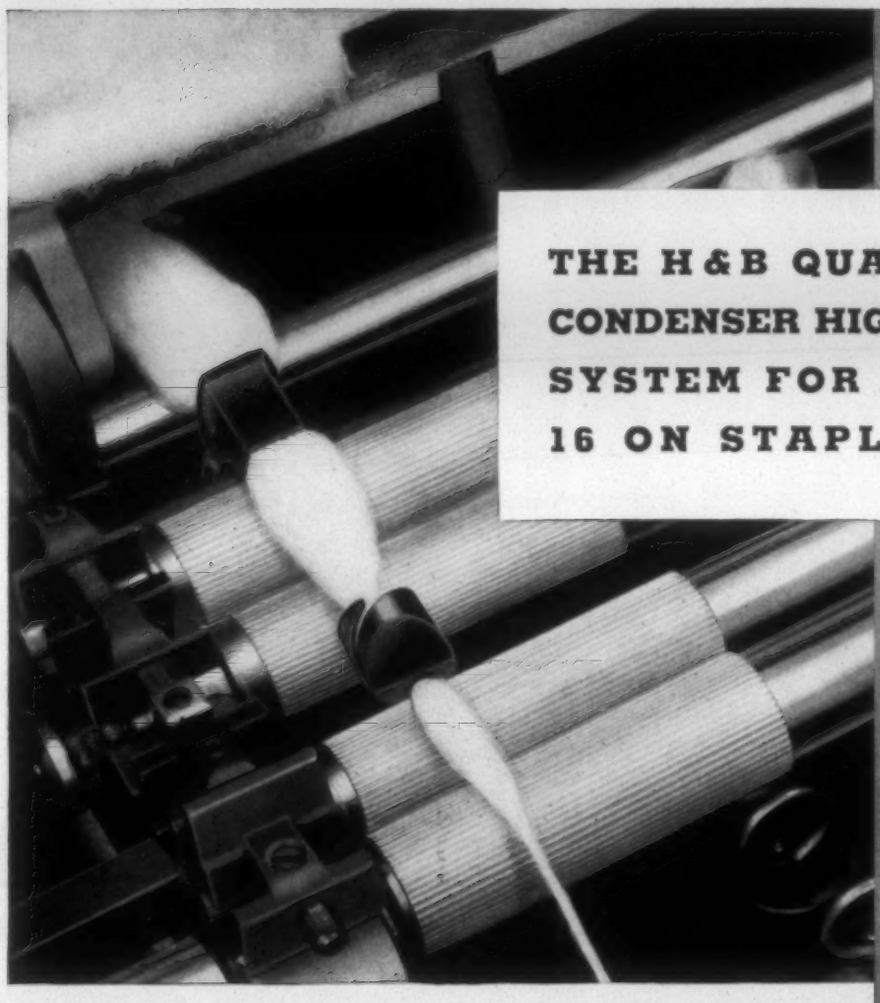

# THE H&B QUAD-ROLL SCROLL CONDENSER HIGH-DRAFT ROVING SYSTEM FOR DRAFTS UP TO 16 ON STAPLES UP TO 1¼"

## New Low Cost Equipment for Coarse Yarn Mills

This latest H & B development has only 4 sets of rolls. It offers all of the advantages of a one process roving system without sacrificing yarn quality in any way. Like the H & B 5-Roll System, it has our Patented Scroll Condenser (made of Bakelite to eliminate static) which gives the sliver a half turn of twist between the two drafting zones, folding in the outer fibres and thus producing a stronger and more uniform yarn. Other features include:

***A rectangular serrated trumpet*** which spreads the sliver for the first drafting zone and combs the fibres to improve drafting and reduce fly.

***A new patented weighting system.*** This facilitates cleaning because of streamlining and fewer parts, and provides positive control of weight distribution. One weight controls 3 back lines of rolls, thereby eliminating the binding of multiple weights under the roller beam. Lubricating method saves oil by controlling distribution and increases life of roller covering. The weight hook has a finger grip for releasing weight load on rolls and the weight lever may be slipped out of the stirrup to facilitate removal of the saddle. The stirrup design also provides maximum cleaning space.

The H & B Quad-Roll High Draft Roving System is now operating successfully in a number of mills. Let us recommend an installation for you.

**H & B AMERICAN MACHINE COMPANY**
*TEXTILE MILL MACHINERY*
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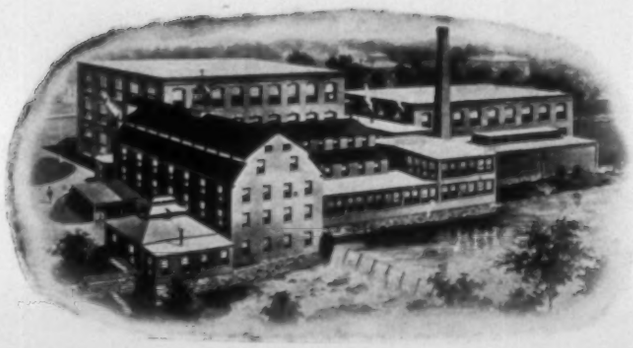
**H&B**
**TEXTILE MILL MACHINERY**

***Visit Us At The Greenville Show - Section 112***



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# *HEADQUARTERS FOR* Rings

## Your U. S. source of Eadie High-speed Rings

*Oblique-groove Eadie Oil-lubricated Ring*

*Eadie Multiple-groove Greased Ring*

For most twisting, and for wool spinning, our Eadie rings permit production increases usually from 25% to 50%, depending on the class of work you are running. From our wide experience with these rings, we can tell you pretty accurately what to expect. Bear in mind, too, that our laced oil-lubricated ring and our multiple-groove greased ring are installed without rail change.

## All types of standard rings with famous "Diamond Finish"

Since 1873, the DIAMOND FINISH line has grown to include more than 1,000 styles and sizes, each a masterpiece of the ringmaker's art. As the world's largest independent ring shop, all our efforts, our research, our manufacturing ingenuity have been devoted exclusively to making the finest rings that can be produced.

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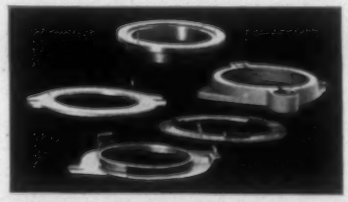
DIAMOND FINISH, you are literally coming to Ring Headquarters. Only here can you obtain all standard rings plus exclusive Eadie designs. And only here can you obtain comprehensive advice based on working familiarity with ALL phases of modern ring practice.

## All types of Ring Holders



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**SPINNING** DIAMOND FINISH **RING CO.**

*Makers of Spinning and Twister Rings since 1873*

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*TEXTILE SHOW BOOTH 202*

# Visit C & K at Greenville!

March 31 through April 5

**SEE THESE**

## MODERN C & K LOOMS IN OPERATION

### 82″ W-3 Convertible with Filling Mixer

The first showing of the C & K Filling Mixer — although this motion is a proven success with three years' mill experience behind it. Possible to weave automatically a single pick from 3, 4, or 5 shuttles consecutively. At present applicable only to W-3 woolen looms.

### 72″ C-4 weaving Rayon and Wool Blend

This much-talked-of 60-40 blend and the perfect loom for this type of goods. To finish 58″ to 60″, a 72″ between swords loom is ideal. Large bobbin $8\frac{3}{4}$″ in length with maximum wound diameter of $1\frac{3}{8}$″. Conservative speed of 136 picks per minute.

### 56″ S-5 weaving Rayon Crepe

The S-5, launched at Greenville two years ago, has fully taken its place beside the other C & K perfected machines. On order for or in the hands of seventeen mills this 2 x 1 box loom operates 162 to 172 picks per minute in the 56″ between swords width.

### 52″ S-5 weaving Spun Rayon

Another, narrow S-5 operating in another field. By mixing the filling a more uniformly perfect piece of goods is possible. Large beam, large filling package, high speed, high efficiency, low percentage of seconds, and lessened loads on weaver, fixer and battery hand.

**C & K 1304-hook Double Lift Double Cylinder Jacquard**

**C & K Horizontal Spring Jacks**

**C & K Full Automatic Let-offs**

**Defense Material Woven on C & K Looms**

# CROMPTON & KNOWLES LOOM WORKS

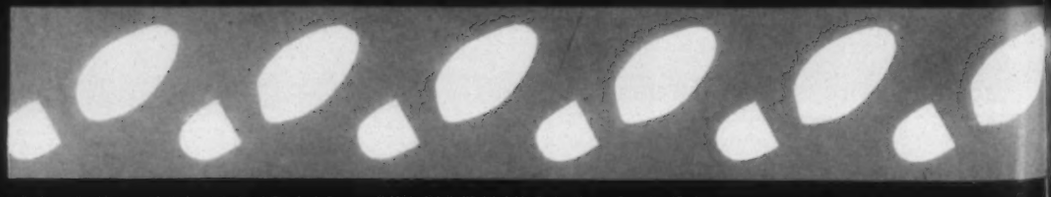
WORCESTER, MASSACHUSETTS

# Step Over to the

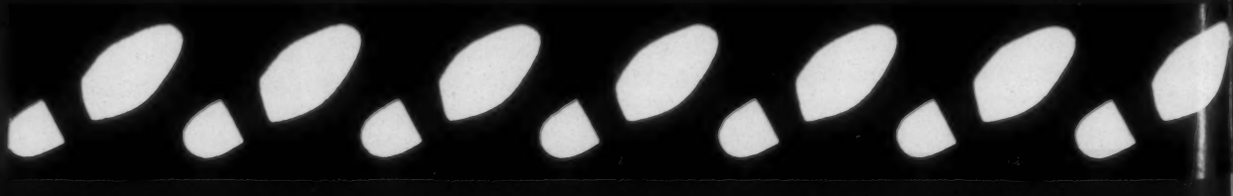
## New Box Loom Census shows modernization is hardly begun

**This chart shows the dangerously heavy proportion of worn-out, over-age box looms to new, efficient equipment.**

C & K SILK & RAYON LOOMS OVER 10 YRS. OLD

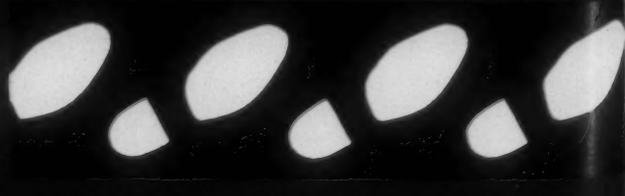


C & K COTTON LOOMS OVER 10 YRS. OLD



EACH FOOT REPRESENTS 10,000 BOX LOOMS

C & K WOOLEN & WORSTED LOOMS OVER 10 YRS. OLD



Small Steps are easy

# Profit Side!

## Can your looms match these new C&K's?

| Type of Looms | Width Between Swords | Speed Picks per min. | Looms per Weaver | Looms per Fixer | Per cent Mill Efficiency |
|---|---|---|---|---|---|
| Woolen W-2 and W-3 | 82"-92" | 116-134 | 4-6 | 20-24 | 85-90 |
| Worsted W-2 and W-3 | 82" | 128-152 | 6-9 | 20-24 | 85-95 |
| Silk and Rayon S-5 | 54"-58" | 162-172 | 12-36 | 40-48 | 93-95 |
| Dobby Terry Towel C-5 | 34" | 172 | 10 | 38 | 85-90 |
| Cam Terry Towel C-5 | 34" | 182 | 12-14 | 48 | 85-90 |
| Dobby Spun Rayon C-4 | 68" | 135 | 8 | 48 | 85 |
| Dobby Leno C-6 | 52"-56" | 162 | 12 | 42-48 | 85 |
| Staple Blankets* C-4 | 72"-92" | 128-135 | 28 | 28 | 90-95 |
| Fancy Blankets* C-4 | 72"-92" | 128-135 | 6-8 | 28 | 90 |

*Cotton and Part Wool

LOOMS 10 YEARS OLD AND UNDER

## Defend America by Defending Yourself

Improve your competitive position by equipping with looms that are more adaptable to changing styles... that reduce fabric defects by reducing loom stoppages... that make men more productive.

The post-war threat from abroad of forced labor and confiscated materials is no idle rumor. The American way to meet it is with highly efficient, highly adaptable producing units that help preserve the American standards of living.

SEND FOR THIS THOUGHT-PROVOKING BOOKLET

It contains check sheets which produce vital facts which will help you "Step over to the Profit Side." Write for it today.


**CROMPTON & KNOWLES LOOM WORKS**

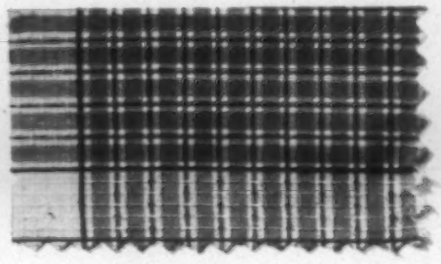
WORCESTER, MASSACHUSETTS

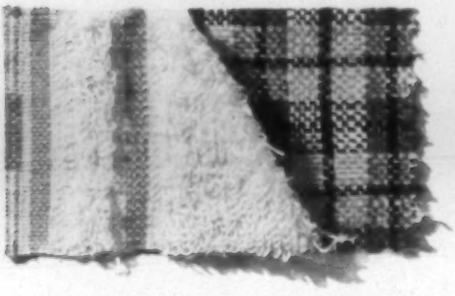
# Certain Cotton Fabrics Woven on C&K Looms

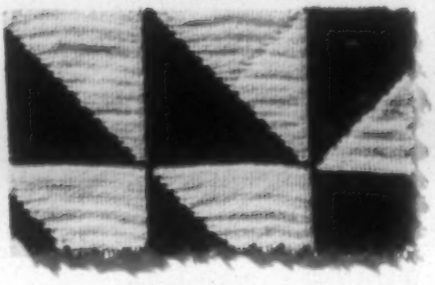
SHIRTINGS . HANDKERCHIEFS . DRESS GOODS

TERRY & HUCK TOWELS . BATH MATS

BEDSPREADS







## C-6 FANCY LOOM

For the above fabrics there is the C-6 2x1 or 4x1 dobby loom, with usual widths running 48" to 58" between swords. This is the latest model in the C family and is designed particularly for high speed operation from 162 to 172 picks per minute.

It is expected that on average constructions it would be possible to run twelve to the weaver and forty-eight to the fixer, with an actual efficiency of 90% and over.

The standard shuttle sizes: $15\frac{3}{4}$" x $1\frac{3}{4}$" x $1\frac{3}{8}$" x $1\frac{3}{32}$" and 16" x $1\frac{3}{4}$" x $1\frac{3}{8}$" x $1\frac{3}{32}$". For bobbins: $7\frac{3}{8}$" x $1\frac{1}{8}$" and 8" x $1\frac{1}{8}$".

## C-3 AND C-5 TOWEL LOOMS

Looms for these fabrics vary considerably as to width and harness motion. The C-3 and C-5 looms are standard. Widths are from 33" to 60" with speeds running from 182 picks per minute for the 33", to 152 picks per minute for the 60". The Huck Towel loom is built with a dobby harness while the Terry and Bath Mat looms are built with undercam, dobby and jacquard. Maximum bobbin size: $8\frac{3}{4}$" x $1\frac{5}{8}$".

The C-3 loom permits a 24" diameter warp beam and 22" diameter roll of cloth as compared with 22" diameter and 20" diameter respectively for the C-5.

## C-4 BEDSPREAD LOOM

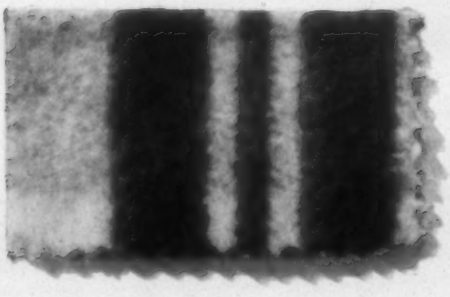
A most successful new loom for weaving of bedspreads of cotton, rayon and mixtures, is the C-4 jacquard loom. Like all C looms this is an automatic bobbin changer and the maximum bobbin is $10\frac{1}{8}$" x $1\frac{5}{8}$" using a shuttle $19\frac{1}{2}$" x $2\frac{1}{4}$" x $1\frac{3}{4}$" x $1\frac{11}{16}$".

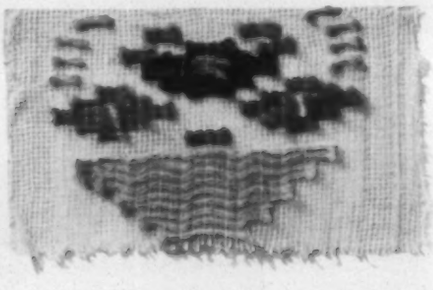
The widths vary from 98" to 120" between swords and speeds from 114 to 120 picks per minute. Looms are operated at 85% to 90% efficiency with six to the weaver and thirty or more to the fixer. As a rule these looms are operated under double lift, single or double cylinder jacquards.

BLANKETS

UPHOLSTERY & DRAPERY MATERIAL

LENO-MARQUISETTES





## C-4 BLANKET LOOM

The C-4 blanket loom is standard for cotton, part cotton and part wool, and all wool blankets. It is built in the undercam, dobby and jacquard constructions and is invariably 4x1 to take a bobbin $10\frac{1}{8}$" x $1\frac{5}{8}$". Widths are from 72" to 92". These looms run from 128 to 135 picks per minute. On staple blankets it is possible to run twenty to twenty-eight looms per weaver with fourteen looms per battery hand. On double face and fancy blankets weavers will run six to eight and fill their own magazines. A 24" diameter warp beam and 22" diameter cloth roll help to make this an economical loom.

## C-4 UPHOLSTERY & DRAPERY LOOM

The usual loom for these materials is the C-4, 20- or 25-harness, $\frac{13}{32}$" gauge, dobby loom. Like all of the C line it is usually 4x1 box, but this particular loom is often bought with the convertible feature, permitting its being changed from 4x1 automatic to 4x4 non-automatic and vice versa. The bobbin size is $8\frac{3}{4}$" x $1\frac{3}{8}$" and the speeds are 135 to 142 picks per minute. Standard widths run from 64" to 72" between swords. Depending upon the types of goods, four to twelve looms are operated by a single weaver with thirty to forty in a fixer's section.

## C-6 CLIP SPOT LOOM

An important newcomer to the line is a C-6 loom especially built for clip spots and plain marquisettes. Many new features have been incorporated to permit at least 85% efficiency at 162 picks per minute on looms running from 52" to 56" between swords.

Bobbin sizes are $7\frac{3}{8}$" x $1\frac{1}{8}$" and 8" x $1\frac{1}{8}$".

Significant is the fact that twelve of these looms can be operated to a weaver and forty-two to forty-eight to a fixer. Much emphasis has been placed on the lessening of the weaver's and fixer's work load.

*Space does not permit a full listing of the C-4 dobby and intermediate head looms for Spun Rayon Suitings. Please inquire for further information on the recommended loom for this important field.*

**CROMPTON & KNOWLES LOOM WORKS** WORCESTER, MASS.

3-41-104

# ANNIVERSARY SECTION

## 30 Years of Progress

A lot of cotton has traveled from the opening room to the shipping room and manufacturing processes along the way have changed considerably since Volume I, Number I, of TEXTILE BULLETIN was published 30 years ago.

The pages that follow tell a fascinating story about some of the more important improvements that have been made during this period in the "tools" with which the textile manufacturer must work. Obviously it would be impossible to cover all of the major developments in the space available here, but we believe that the group of articles in this section comprises the most complete review of its kind that has ever appeared in a single issue of any textile publication.

It will be noted that the contributors of the articles are the machinery and equipment builders. We turned to them rather than to the textile manufacturers for this material because we felt that they alone would have at hand the records and data essential for a chronological review of the new developments during these years and a discussion of their value to manufacturers of various kinds of goods and under various conditions.

In 1890 the total spindles in the rest of the United States outnumbered those in the South by ten to one. Today this is the cotton manufacturing center of the world, a position that has been attained largely because Southern mill officials and operating executives have always been eager to investigate every worthwhile improvement in equipment and manufacturing processes and have been quick to adopt those that would do the job in a better way.

Modernization today is more important than ever before, not only because of heavy national defense program demands, but also because manufacturers must give themselves every possible advantage in the way of low cost operation if they hope to meet the keen peace-time competition that will follow.

We are sure therefore, that the theme chosen for this Anniversary Number, "Thirty Years of Progress," will appeal to TEXTILE BULLETIN readers, and that the advantages of the new and improved equipment discussed in the following pages will be carefully studied.

Fortunately, the articles are appearing just in advance of the Southern Textile Exposition, where much of the new equipment described here will be in operation or on display, and where mill men will have the opportunity to secure first hand additional information regarding any particular items in which they are interested.

It is apparent that the authors of the articles devoted a great deal of thought and time to their preparation, and to each of them TEXTILE BULLETIN wishes to express publicly, its sincere thanks.

SUBJECTS COVERED

# Opening and Picking Has Come Far In Past Thirty Years

By A. K. Landau
Saco-Lowell Shops

THE opening and picking department of thirty years ago—what a contrast it is to that of today! Thirty years ago, except in the larger and more ambitious mills, any hole in the wall or corner of the cotton storehouse was considered good enough to house one or two bale breakers and the lonely attendant whose monotonous task it was to place armful after armful of cotton in the never filled hopper of the bale breaker. This task of manual labor started some time in the early hours of Monday and continued for a work week of 55 or 60

Opener Room in Large Southern Mill

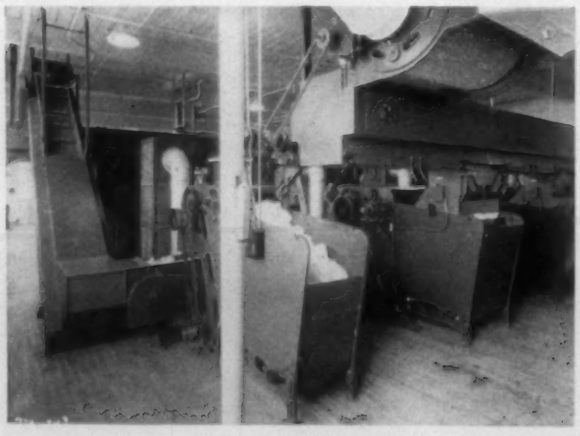
hours. In this low ceilinged space—by courtesy an opening room—there were sprinklers by compulsion of the insurance company. In the winter there was no heat and there was always a cloud of dust hanging in the air, since there was no provision on the bale breaker for removing the fine floating lint and dust taken out of the cotton by the fan.

The cotton, as it was discharged from the bale breaker, was carried to the opening room. Sometimes the cotton passed through an old-fashioned cotton fan. Only the better mills used condensers. The only resemblance to an automatic control was a gong which could be rung from the picker room as a signal to stop the bale breaker Sometimes instead of a gong there was a pipe with a whistle on the end. The cotton from the bale breaker, as we have said, was pulled through a pipe either by a fan or a condenser which discharged it into a bin. The outfit which we have just described was found in some of the newer mills. In the older mills there was an automatic feeder delivering cotton to a porcupine opener which discharged into a dust trunk and conveyor pipe which delivered the cotton directly to the cage section of a breaker lapper. Where this old-time system was used there was no attempt made to carry on the operation of mixing and blending as we understand these terms today.

Thirty years ago the picker room consisted of a line of pickers consisting of three units, the breaker section, intermediate section, and finisher section. All of these machines were single beater machines, the only modification being in the breaker which sometimes was provided with a large cage box delivery of simply a screen section at the terminal of the conveyor pipe.

It is true that these assemblies turned out laps which were workable, but these laps, either from the standpoint of uniformity or of sheeting, would hardly be accepted by a well managed mill today. No one in those days paid much attention to the hydroscopic properties of cotton or cared much about regain. When the "boss man" told "Joe," the picker tender, to make a 40 lb. lap, "Joe" made the 40 lb. lap within a half-pound or so either way of tolerance, regardless of humidity. The practical mill men of those days had a wonderful time changing gears to keep their numbers reasonably standard. In those days, the mills had one advantage—they did get better and stronger cotton, certainly more uniform cotton, since the growth was not pushed to minimize boll-weevil damage.

Thirty years ago there was the dust house and all the



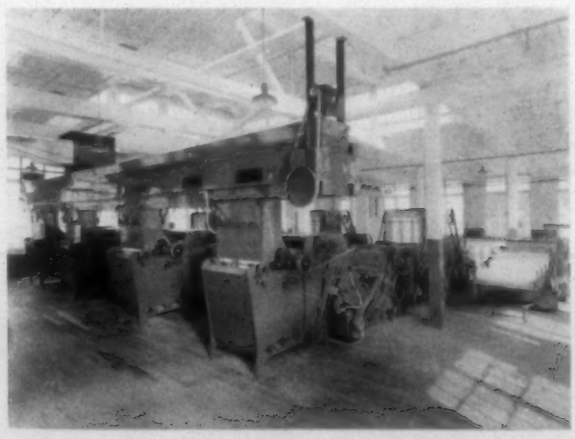
Modern Blending Feeders

filthy drudgery connected with the Saturday noon "clean-out." And, finally in those happy days anybody at all was considered competent to work in the picker room.

As competition in manufacturing became keener and mill men in general began to study their business in ear-

nest, an era of improvements based on science and engineering was started. The significance of atmospheric control and its effect on the regain and workability of cotton led to the use of artificial humidity from the weave room to the opening room and card room, and finally to the picker room where today we find recirculation of conditioned air and lap indicators and pickers which are so accurate and so sensitive that tolerances are held to one-half ounce per yard. Mills with good opening and picking equipment can use their laps without the necessity of weighing more than three or four a day.

As a result of the use of conditioned air and the elimination of static, the sheeting is incomparably better and the workability of the fiber improved. The increasing appreciation of the importance of the opening and picking room, especially in mills using the controlled draft process in the card and spinning rooms, has led to the design and construction of opening and picking departments which are extremely efficient. These modern installations, such as are found in mills like Revolution, Naumkeag, Cannon, Bibb, Dan River, Proximity, and many others, put the opening room where there is plenty of room for big mixings. Fifty or sixty, or even eighty bale mixers are quite commonplace today. Blending feeders have replaced the crude and inefficient bale breaker. Following the blending feeder, which generally operates in batteries of three to five, there is a cleaning range consisting of a vertical and a unit consisting of two dust and waste extractors, and two porcupines in tandem which, in turn, deliver the cotton to a second dust and waste extractor placed over an ordinary distributor. The atmosphere in this well planned opening room will be clean and free from floating lint and dust, since all of the air discharged by the fans will be passed through filters and cleaned of its entrained impurities. Automatic controls and complete synchronization



Controlled Feeding System

reduce human labor to the single operation of taking the cotton from the bale and placing it on the feed apron of the blending feeder.

In these new machines great pains have been taken to control air currents and other details which would affect either fiber strength or fiber recovery, so that the cotton leaving this cleaning process is in far better condition for spinning than would be the case with a similar cotton of thirty years ago.

Thirty years ago it was considered good practice to subject one-inch cotton to at least 155 beats per inch. Today the well-planned opening room does so much cleaning with air that the beats per inch in the picker can be reduced to from 50 to 75. Engineers have learned how to make air do two jobs at once—transport and clean.

The carder of thirty years ago, coming back to the mill after a prolonged absence, would have a lot to learn. He

Modern Picker Room

would find many innovations. On the one-process picker, for example, he would find a blending reserve, super-sensitive eveners, and automatic control. He would have to learn all about rake distributors, solenoid switches, mercoid switches, and about regain and lap weight indicators. He would have to familiarize himself with high pressure lubricating systems, with adjustable grid bars, lap meters, fiber sortings, and air filters. He would not find much help to boss, because, on account of the highly synchro-

Note Ample Floor Space and Cleanliness of This Room

nized operation and automatic control, one skillful operative will run four or five one-process pickers, assisted by not more than two more men in the opening room to keep the cotton coming.

The last thirty years have certainly brought about a revolution in this department. We will perhaps see just as drastic a change in the next thirty years, with signs on the horizon of an increasing use of artificial fibers of all kinds, both alone and blended with cotton. It is safe to say that the makers of textile machinery are keenly aware of this trend and will have equipment ready to meet the new demands and new conditions.

# Thirty Years Ago There Was No Long-Draft Roving

By Samuel Walsh

Research Engineer

H & B American Machine Co.

ALTHOUGH the principle of long drafting was embodied in a patent taken out in England in 1823, there were no subsequent developments for the next seventy-five years which made it commercially available to the cotton spinning industry. About 1900 several long draft arrangements were used on a limited scale but it was not until about 1912 that the birth of the Casablanca system gave the impetus to other systems. From that time on there has been continued improvement and progress in extending control of short fibres as well as long so as to make possible increased drafting without deterioration to the finished product.

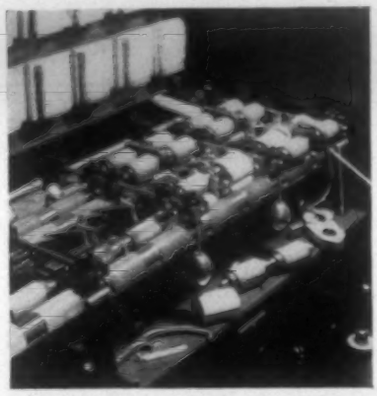
Although in the early stages of development, long draft was confined only to spinning frames, the principal of control was soon found to be readily applicable to roving machinery. Having been well established through research and definite limitations, rapid advancement was soon made in reducing the number of roving operations and in many cases producing in one operation a finished roving direct from the drawing frame sliver. The regularity and appearance of standard roving having been equalled or surpassed by the introduction of long draft, no further impediments remained to produce a required roving at a greatly reduced operating cost.

Trial installations soon convinced the most skeptical that much of the existing roving machinery could be dispensed with, thus making possible additional savings in power and maintenance. Due to the reduction in the number of machines required, additional floor space became available for more economical arrangement of other equipment. As all existing systems have the same basic operating principle, they can be readily applied to all makes of machines, both new and old. The conversion of old machines to long draft not only reduces very greatly the initial investment but reconditions such frames for longer life and improved performance. The installation of new frames insures maximum production of the highest quality at the minimum cost for operation and upkeep.

The underlying principle of long draft roving consists in employing the usual or break drafts in the first or preliminary drafting zone. Owing to the attenuated condition of the roving from this point on it is necessary, before attempting further drafting, to prepare the ribbon of cotton so as to control the flank fibres which have become detached from the main ribbon. This is generally accomplished by folding in or turning over the outer edges of the semi-drafted roving in such manner as to control and condense it for the final drafting zone. Many types of devices have been introduced for the folding or false twisting operation and are generally known to the trade as folders, constricters, scroll condensers, and false twisters. The majority of these maintain a fixed position and move in unison with the back traverse rod. Others are in the form of a revolving funnel which imports a certain amount of false twist as the fibres pass through the funnel. The present advanced state of long draft roving has not been reached within a short space of time but is the result of intensive study and experimentation with fibre control, roller weighting, waste elimination and roller covering. All of which very materially effect the regularity and strength of the roving obtained.

In no other department of a mill is the return in the investment so high as in a card room which has been converted to the long draft roving system. In connection with this method of processing roving, however, it should be remembered that its successful operation depends in a very large measure upon the regularity and quality of work obtained in previous processes. While special emphasis might be laid upon securing a very regular and even drafted drawing frame sliver, it is also essential that both cards and pickers show function at their highest efficiency. The actual savings to be obtained vary widely according to the counts of yarn produced. Many mills on medium and coarse numbers have found it possible to eliminate both slubbing and intermediate frames making

the required roving in one process direct from the drawing sliver. Others prefer, due to their specialized products, to eliminate only one process, thus using long draft intermediate and the conventional three roll roving. In all cases a very thorough survey should be made to accurately determine just what arrangement would produce the highest quality of work at the most economical cost. A few examples will serve to give a clearer idea of long draft installations as compared with the regular or conventional roving process.



The five-roller long drafting system

EXAMPLE NO. 1—CONVENTIONAL SYSTEM

| System | Doublings | Hank | Draft | Total Machines |
|---|---|---|---|---|
| Breaker drawing | 6 | .1514 | 5.67 | .... |
| Finisher drawing | 6 | .1514 | 6.00 | .... |
| Slubber | 1 | .55 | 3.63 | 6 |
| Intermediate | 2 | 1.20 | 4.36 | 4 |
| Roving | 2 | 3.00 | 5.00 | 10 |
| Intermediate | 2 | 1.35 | 4.90 | 4 |
| Roving | 2 | 3.50 | 5.60 | 9 |

EXAMPLE NO. 2—LONG DRAFT SYSTEM

| System | Doublings | Hank | Draft | Total Machines |
|---|---|---|---|---|
| Breaker drawing | 6 | .1514 | 5.67 | .... |
| Finisher drawing | 6 | .1514 | 6.00 | .... |
| Slubber long draft | 1 | 3.00 | 19.81 | 10 |
| Slubber long draft | 1 | 3.50 | 23.11 | 9 |

The long draft arrangement in Example No. 2 would show at least a saving of 45% over the conventional arrangement given in Example No. 1.

EXAMPLE NO. 3

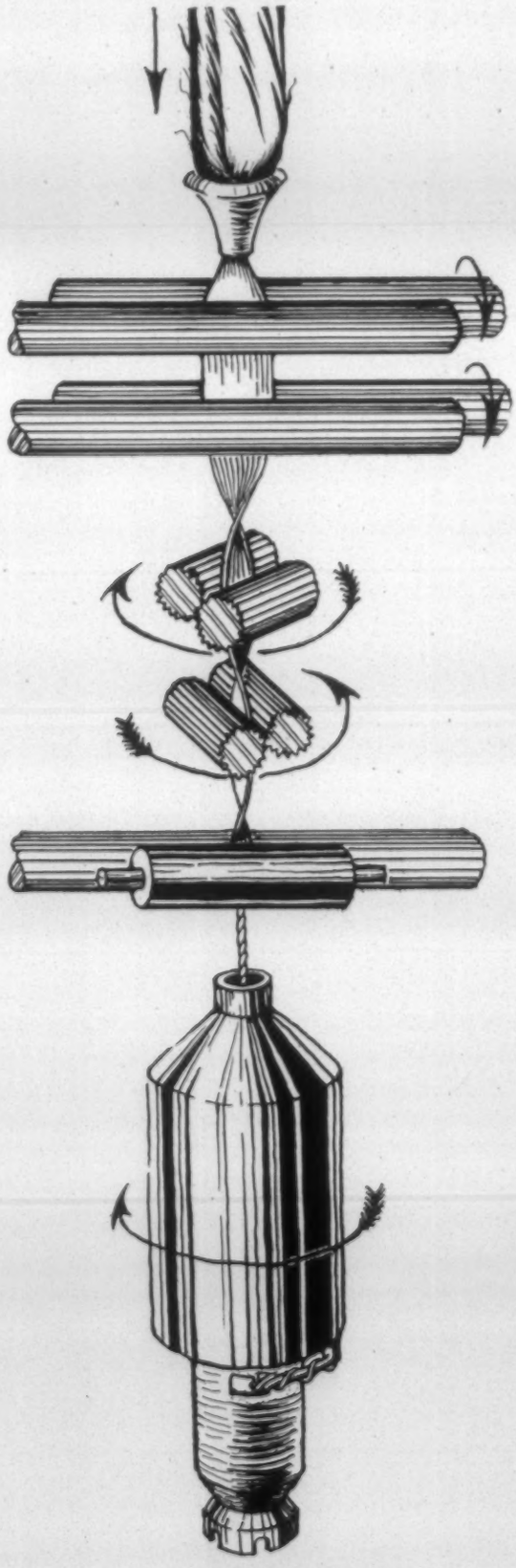
| System | Doublings | Hank | Draft | Total Machines |
|---|---|---|---|---|
| Breaker drawing | 6 | .1514 | 5.35 | .... |
| Finisher drawing | 6 | .1514 | 6.00 | .... |
| Slubber | 1 | .60 | 4.03 | 8 |
| Intermediate | 2 | 1.60 | 5.33 | 14 |
| Roving | 2 | 4.00 | 5.00 | 18 |
| Roving | 2 | 5.00 | 6.25 | 17 |

EXAMPLE NO. 4

| System | Doublings | Hank | Draft | Total Machines |
|---|---|---|---|---|
| Breaker drawing | 6 | .1514 | 5.35 | .... |
| Finisher drawing | 6 | .1514 | 6.00 | .... |
| Slubber long draft | 1 | 1.60 | 10.95 | 14 |
| Roving | 2 | 4.00 | 5.00 | 18 |
| Roving | 2 | 5.00 | 6.25 | 17 |

The long draft arrangement in Example No. 4 would show a saving of approximately 30% over the conventional arrangement given in Example No. 3.

As higher drafts are now possible with higher quality everyone considering modernization should investigate very carefully the outstanding savings to be obtained by the installation of long draft in the card room.



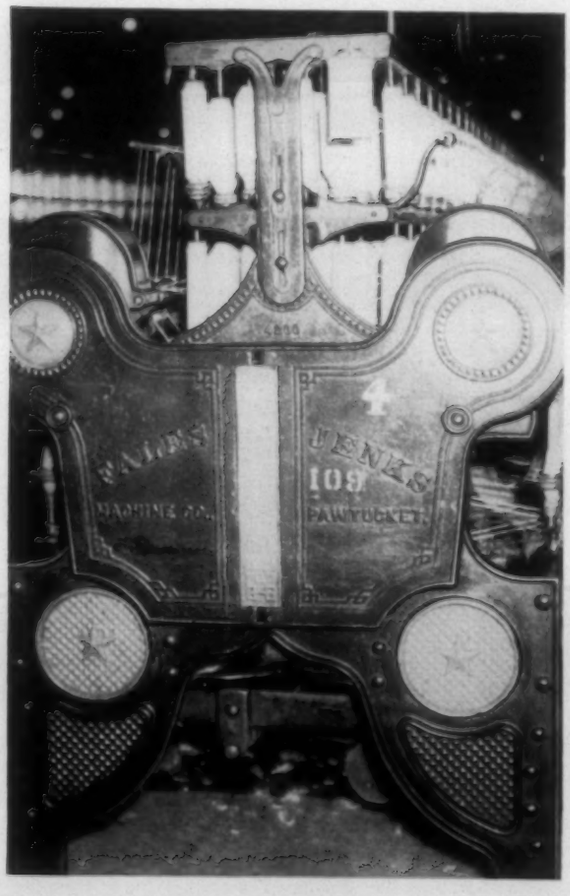
H & B's system in diagram

# Long Draft Spinning Simplifies Mill Layout

By R. W. Rawlinson
Whitin Machine Works

TODAY it is estimated that there are more than ten million spindles operating on one or the other of the leading long draft spinning systems. The wonder is that this does not represent 100% of the active cotton spinning spindles because the benefits to be derived from the use of long draft spinning are such as to place a mill operating on the old standard draft at a serious competitive disadvantage.

Probably the most obvious general result of the installation of long draft spinning is a simplification of the card room layout, and yet this is only one of many advantages which may be brought about. In fact the manner in which advantage may be taken of the benefits of long draft spinning is more or less at the option of the mill making the installation.




This Fales & Jenks Frame may have been built a little more than thirty years ago, but it offers an excellent comparison with the photo of a modern spinning room shown on the adjoining page

While the advantages to be gained through the use of coarser roving both in the spinning room and card room are not to be minimized, increasing recognition is being given to the definite improvement in yarn and roving quality brought about by use of the apron drafting principle. Mills that are spinning very coarse numbers are installing long draft, even though they cannot take advantage of the full possibilities, for the sake of the better fiber control which is an inherent feature of the best long drafting systems. This is especially true where short cotton and perhaps waste mixes are being used.

Soon after the advent of long draft spinning, it became obvious that the benefits of improved fiber control and coarser rovings could be as valuable in the card room as in the spinning room. This led to the application of the long drafting principle to the roving frames, and the combination of long draft roving and long draft spinning has resulted not only in a more economical production unit but in more even and stronger yarn.

Merely as one example of how long draft installations can affect a yarn organization, let us make a comparison of a theoretical mill of thirty years ago and a mill of today equipped with long draft in both the spinning and carding departments.

1911 MILL

Yarn—29s warp
Spinning draft—10.54
Spindles per frame 224
No. of frames—112
Production per 80 hrs—46,500 lbs.
Specifications:
2¾ gauge, 1⅝" ring, 6" traverse

Fine Roving (7x3½)—5.50 hank (Dbl.)
Fine Roving draft—6.11
Spindles per frame—160
No. of frames—29

Intermediate Roving (9x4½)—1.80 hank
Intermediate Roving draft—5.14
Spindles per frame—104
No. of frames—10

Slubber Roving (11x5½)—0.70 hank
Slubber Roving draft—4.20
Spindles per frame—68
No. of frames—5
Finisher drawing sliver—50 grain

# Thirty Years of Progress

1941 MILL

Yarn—29s warp
Spinning draft—18.75
Spindles per frame—276
No. of frames—83
Production per 80 hrs.—46,500 lbs.
Specifications:
3¼ gauge, 1¾" ring, 7½" traverse
Super-draft roving (8x4x7)—3.20 hank (Dbl.)
Super-draft Roving draft—23
Spindles per frame—138
No. of frames—15
Finisher drawing sliver—60 grain

The simplicity of the 1941 organization as compared to that of the 1911 mill is at once obvious. Instead of three roving processes, there is only one. Instead of 44 frames, there are only 15. This, of course, represents not only a simplification of the card room layout but produces an appreciable reduction in labor requirements, oiling, roller covering, repairs, depreciation, etc.

In addition, the net weight on a spinning bobbin will be approximately 2.82 ozs. as against about 1.65 on the old frames. Consequently, doffing will be required much less frequently and the greater length of yarn on each bobbin will increase the efficiency of the spooling operation.

It is not difficult to see why the 1911 mill would find it impossible to offer serious competition to the 1941 mill.

The fact that relatively fine yarns can be spun from one-process single roving is probably sufficient to cause "old school" mill men to turn in their graves. However, it is an accomplished fact that this is being done and that the results in terms of yarn evenness and strength exceed those which were attained through the use of the more complex but antiquated organizations of thirty years ago.

Advantage may be taken of the wide possibilities afforded by installation of long draft spinning in several different ways and the method chosen by one mill may not be best suited to the requirements of another mill.

The most common result of long draft spinning installations is the elimination of one or more roving processes.

Some spinners, however, prefer to retain their usual number of roving processes but to produce coarser hanks, thus suppressing a good portion of their preparatory frames.

Due to the increase in yarn strength brought about by better fiber control, some mills have chosen to affect a further saving by employing a shorter staple cotton to produce a given yarn.

On the other hand, maintenance of the same stock, resulting in increased yarn strength will prove advantageous from the standpoint of subsequent yarn processing. Fabric strength will be increased, and this is often an important selling point in today's highly competitive markets.

Another alternative is to take advantage of the extra strength by reducing the number of turns per inch in the yarn, thus increasing production and enhancing the appearance of the yarn.

Still another important advantage lies in the extension of the spinning limits for any given cotton.

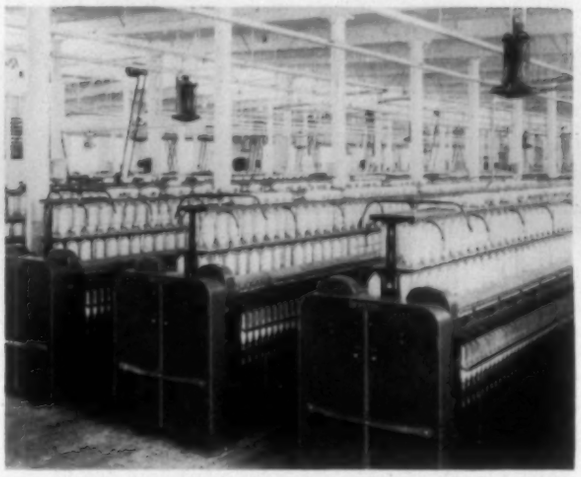


Photo of Whitin Spinning Frames in a modern spinning room. Note compact heads, stronger construction, larger bobbins, etc.

Where frequent changes of counts and quality are required the flexibility of the long drafting system becomes invaluable. Since a wide range of yarns can be spun from a single size of roving, relatively few hanks are required to spin the complete range of counts that any mill would be called upon to spin.

Some of the other benefits that modern mills are reaping from the use of long draft spinning are (1) less creeling due to increased weight of supply package, (2) fewer ends down due to improved yarn quality, (3) preservation of long fibers due to the elimination of close roll settings, and (4) elimination of cockled yarn for the same reason.

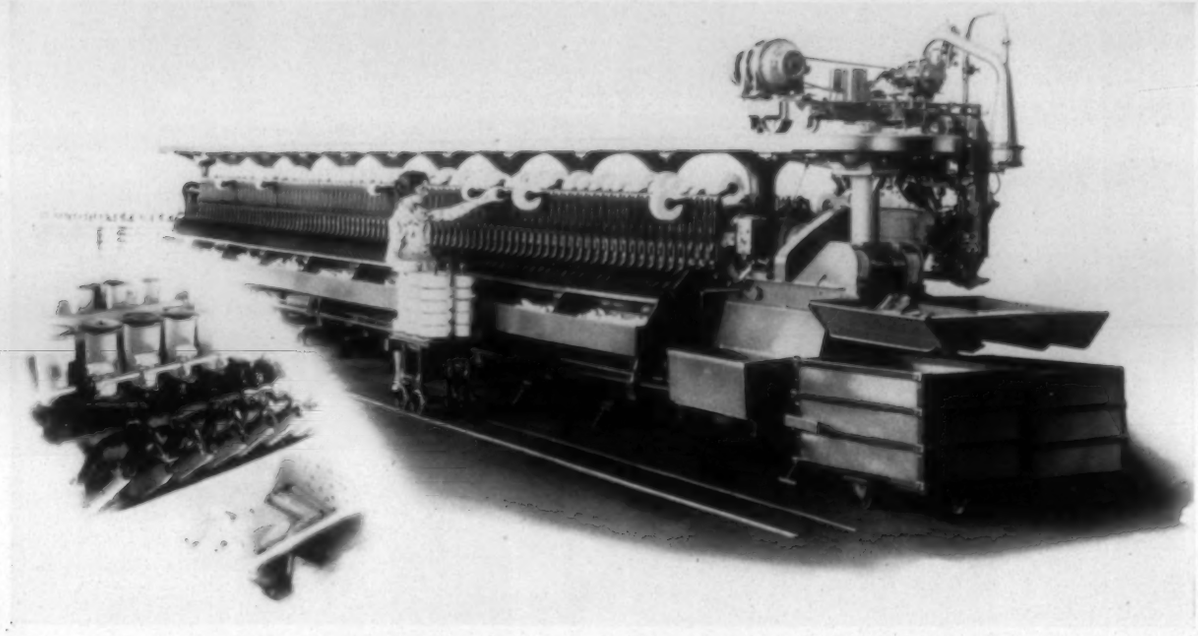
Hand in hand with the development and mill acceptance of long draft there have come a multitude of improvements in spinning frame design and construction that have also had their effect in increasing production, improving quality, and decreasing costs.

Thirty years ago practically all spinning frames were band driven. Today and for the past twenty years practically all new spinning has been equipped with tape drive. The advantages of the more positive spindle drive imparted by tapes in contrast to bands are by now so well recognized that there is no need of discussing them in this article.

The narrow-gauge, short-traverse, small-ring frames of thirty years ago have been largely replaced by frames having wider gauges, longer traverses, and larger rings. The trend to wider gauge has resulted in many cases in elimination of the need for separators. A smoother, stronger yarn is produced where the whipping of the yarn against the separator has been eliminated.

Longer traverses and larger rings have been made possible largely by the development of better rings and by the introduction of traversing thread boards. Rings are harder, smoother, more concentric, and therefore break-in quicker and run easier and longer. The traversing thread board has eased the strain of the yarn as the rail

(*Continued on Page 154*)



# 30 Years Ago There Was No Automatic Spooling And High Speed Warping*

THE making of cloth dates back to the days of ancient history and the spooling of yarn preparatory to the making of cloth is one of the processes involved. The reason for spooling yarn is two-fold; for economy of operation in following processes, several bobbins of yarn are wound from the spinning bobbin onto a larger supply package in order to obtain a long continuous length of warp yarn. Second, and in this modern day perhaps fully as important, the spooling operation is designed to clean the warp yarn of imperfections and thereby improve the quality of the finished cloth.

Up until about 30 years ago there had been little or no improvement in this one phase of making cloth. The operation of spooling was largely a manual one, the spooler tender tying the knot by hand, leaving long tails on the knot and in most instances a kink when tying the end of a fresh bobbin to the end on the spool.

Prior to the advent of the automatic spooler, the art of spooling was looked upon as a "necessary evil," and to a certain extent that old adage still holds true today, although it has been considerably lessened by the introduction of the automatic spooler.

The first improvement in the process of spooling was the introduction of the Barber Knotter, a mechanical device which was strapped to the back of the spooler tender's hand. This knotter improved the efficiency of the spooler girl and at the same time offered a better and more uniform knot, but the human element insofar as kinks was concerned was still prevalent. While the introduction of the hand knotter increased the winding efficiency of the spooler girl, it did not increase the winding speed of the spooler. Up to this time very few improvements had been made towards the development of yarn cleaning devices commonly called "Spooler Guides."

About the year 1920, after many years of experimental development, the Barber-Colman automatic spooler was presented to the cotton mills of America. This spooler was, in some respects, a radical departure from the staid old system of spooling yarn from bobbins to a larger supply package. First, the actual winding operation was tremendously speeded up, jumping from an average of about 200 yards per minute to 1200 yards per minute, an increase of about 600%. This increase was made possible by the elimination of the use of any tension devices other than speed and air friction. Winding speed has long been recognized as the most accurate means of obtaining uniform tension, which is a most important factor in the weaving of cloth. The increase in winding speed not only gave a more uniform tension but resulted in a lower tension than could be obtained with any type of controlled tension device normally used with systems operated at lower winding speeds. This lower as well as more uniform tension naturally resulted in the retention

*Article prepared by a member of the Sales Staff of the Barber-Colman Co.

of more elasticity, which was quite beneficial in the weaving of warp yarn.

The introduction of the automatic spooler, to a great extent, eliminated the human element, which in spooling is recognized by all mill men as a most important factor. While with the old style system of winding or spooling, a mechanically tied knot could be obtained, the elimination of kinks at the knot could not be assured no matter how closely this was watched, and we all know the result of kinks in the weave room.

The automatic spooler was equipped with a mechanical weaver's knotter that tied a true weaver's knot which was in itself a very great improvement over the old spooler knot, whether tied by hand or a mechanical hand knotter. The weaver's knot is a long, slim knot, the body of the knot being equally divided on each side of the two ends tied together, and is universally accepted as the most efficient and satisfactory knot obtainable for both weaving and knitting.

The automatic spooler not only offered a true weaver's knot to the cloth manufacturer but also resulted in the complete elimination of kinks. The introduction of the weaver's knot, plus the elimination of kinks, has to the process of spooling been two of the greatest improvements presented to the manufacturers of cloth in the past 30 years.

The speeding up of the winding process, in addition to the efficiency and quality of the mechanical tie-up, resulted in a considerale reduction in machinery investment, as well as saved a great deal of floor space. The automatic spooler, in replacing older types of spoolers or winders, resulted in a saving of approximately one-half the floor space originally used.

The use of the automatic spooler has practically eliminated the human element, and to a great extent curtailed the manual operations formerly performed by the old style spooler girl. The duties of the automatic spooler girl are somewhat similar to those of a attery hand, the more important operations of tying the knot being handled by the mechanical tie-up. This reduction in responsibility and detailed duties in the actual tying of the knot permits the spooler girl to handle a much greater amount of yarn.

The pounds of yarn a spooler girl with hand knotter can spool or wind in a given period of time is governed entirely by the number of bobbins per minute or hour she can handle. On the old style system of spooling or winding where the knot must be tied by hand or with the aid of a hand knotter, the process is necessarily a slow one, the average girl being able to handle from five to six bobbins per minute. On the automatic spooler the spooler girl's duties consist largely of placing bobbins in the bobbin holders and doffing full cheeses of yarn. Inasmuch as she has no knots to tie, she can handle a great many more bobbins per minute. On the automatic spooler the average spooler girl can handle approximately three times as many pounds of yarn as she can using a hand knotter on the old system of spooling or winding. Under favorable circumstances in some instances on coarser counts of yarn, three spooler girls working together on one spooler have spooled well over a bale of cotton per hour.

The weaver's knotter on the automatic spooler operates at a tying speed as high as 90 knots per minute and at this tying speed will provide work for three spooler girls.

Since the advent of the automatic spooler some 20 years ago many notable improvements have been made. The size of the supply package has been increased from 1½ to 2½ pounds, making it possible to secure two beams from a set of cheeses.

Spoolers are now built in lengths ranging from 90 to 306 spindles, this depending upon the length of yarn on the running bobbin. The earlier automatic spoolers averaged around 80 spindles in length and were operated by one spooler girl. Later they were lengthened sufficiently to provide work for two girls. Several years ago the automatic tie-up was redesigned to permit increasing the speed 25%, this making it possible to further lengthen the spooler and furnish work to three spooler girls.

As time has passed on, quality has become more and more a factor in the spooling of warp yarn. It is a generally recognized fact that the mill turning out a quality piece of goods has little difficulty in disposing of their product at a profit. The old-time spooler guide, which was never any too satisfactory at the best, has been superseded by the snick plate, a yarn cleaning device that employs an entirely different principle and is very much more effective in the cleaning of warp yarn. The snick plate is obtainable in two different types, determined by the degree of cleaning desired. On the coarser yarn counts the standard toothed type two-blade snick plate is recommended. On finer counts where a higher grade of quality is demanded and more selective cleaning is necessary the breaker type snick plate is very efficient.

Both types of snick plates are strongly constructed, making it possible to obtain a close, as well as accurate, setting of the plates.

In the old days, the changing or resetting of the old spooler guides to handle another count of yarn was a long and tedious process with small assurance that the job had been accurately done or that the guides would stay put. Where different yarn numbers were run it was made a policy to set the guides "in between," with the result that the coarser count was probably chafed and the finer number received little or no cleaning.

To meet the requirements of mills on multiple counts both types of snick plates have been made quickly adjustable. With a setting wrench, which will accurately set the blades to any desired opening, the setting of the snick plates on an entire spooler can be changed in a very few minutes.

The warping of yarn is the first paralleling process of the warp ends preparatory to weaving. For a great many years there was little or no improvement made in warpers that would tend to greatly improve this process. For a long time warping speed was necessarily slow, first, due to the uneven pull on the warp ends, and second, to the overrun of the ends in stopping. In these early days warper brakes were an unknown thing. When a warper stopped off, both the section beams and the spools came to a gradual halt, the slack roll taking care of the overrun of the spools. A warping speed of from 40 to 75 yards per minute was about as fast as these old warpers could be run, and even at this low speed the thread breaks per beam were considered quite high.

At these low warping speeds several hours were required to fill up a beam, this oftentimes resulting in a slasher having to stand considerable periods of time while waiting for the last beam of the slasher set.

*(Continued on Page 150)*

1911 Slashing Ran 10
to 16 Yards Per Minute

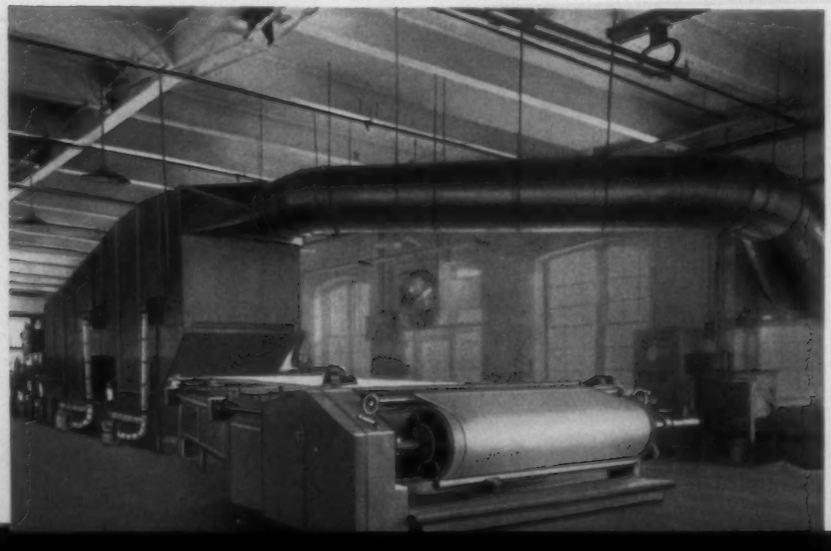
# HIGH SPEED SLASHING

1941 Slashing May Run
40 to 85 Yards Per Minute

THIRTY YEARS AGO slashing consisted largely of applying simple starch and water (with a little kerosene added to prevent sticking) to warps, drying them, and hoping for the best in the weave room. Speeds ranged from 10 to 12 yards per minute on coarse yarns and up to 16 yards per minute on the finer counts. Mildew and scorching were common; tight and slack warps resulted from lack of tension control; many weave room troubles could be traced directly to the slashers.

Today, while many mills are still running slashers that leave much to be desired, there are available many aids to the slasher room foreman that were unheard of thirty years ago. He can get size tailored to fit his specific requirements, he can install ball bearings on his creel, automatic size mixers, automatic heat controls both for the cylinders and size box, tension regulators, cut markers, and many other things to assist him in getting off good warps. He can operate his conventional type slashers at higher speeds than he could thirty years ago, and get better results. Also available now, and about which this article will be confined mostly, is the new Saco-Lowell High Speed Slasher, which goes far beyond the conventional type slasher in performance.

This new slasher, cut of which is shown on this page, was released for production only five years ago, in 1936, so most mill men are not familiar with its construction or operation. Among the Southern mills that are equipped with this type of slasher are the Dwight Mfg. Co., of Alabama City, Ala., and the Mathews Cotton Mill, Greenwood, S. C. In describing the construction and operation of this slasher, which attains speeds up to 85 yards per minute, portions of the Saco-Lowell Bulletin of January are quoted, as follows:



The slasher, as presently constructed, consists of five assemblies, each with its own function, built to specifications which can be changed to create a construction which will operate to the best advantage on any given job.

These assembles are as follows:

The Head End, with its drive, comb, and press roll.
The Cylinders, with gear drive and drainage system.
The Size Box, with stretch control.
The Magazine Creel, with automatic brakes.
The Enclosure and Moist Air Exhaust System.

### The Head End

The various assemblies which are a component part of the head end are mounted on a rugged and substantial frame fabricated from structural steel members.

Adjustable stands for the smooth and polished lease rods are carried in brackets fastened to the housing. There is one lease rod for each section beam in the creel, as well as the large split rod used to separate the dried warp into two sheets. On warps with a large number of ends, such as would be found in wide, high-count sheetings, there are two extra split rods used, so that the final separation of the ends is gradually accomplished, and this with the least amount of tearing or breakage.

A metal sheet extends the full width of the slasher across the top. This sheet, in connection with similar side pieces, makes an effective enclosure for the regulating mechanism which is housed within this closed-off space.

The traction of the warp is secured by a large, cast-iron, cloth-covered drag roll, 9″ in diameter, working in connection with a 4″ polished measuring roll and a similar 4″ press roll. At the rear of the head end there is a cooling fan with four steel paddles, driven by a 1 H.P. motor, whose controls permit it to operate only when the slasher is running at the full operating speed. The fan is driven through a Texrope Drive and is mounted in anti-friction bearings.

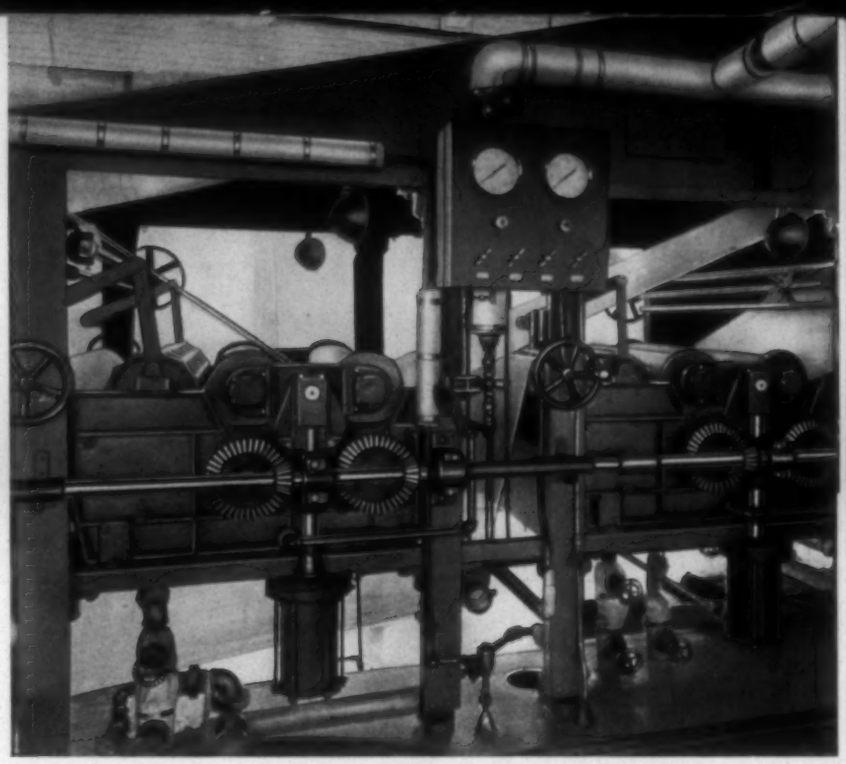
### The Driving and Speed-Regulating Mechanism

The speed of the yarn over the cylinders is regulated to obtain a constant moisture content in the yarn. The speed of winding is

governed by the diameter of the warp at any instant, and this winding must be regulated to maintain a constant predetermined tension between the nip of the drag roll and the press roll, and the point of tangency at the loom beam, with its warp content.

The moisture content of the warp is governed by a moisture controller, which measures the moisture in the warp by means of the variation in the resistance encountered by a current of low intensity flowing between a detector roll and the measuring roll. In other words, it is based upon the physical law that the conductivity of cotton varies as the regain. This relation between moisture and conductivity is not affected by the count of the yarn or the number of ends. It is thus not only possible, but practical, to construct a self-balancing circuit containing a simple resistance, to measure the moisture content of the warp and to calibrate the measuring instruments to read the moisture content directly.

The flow of current from the detector roll to the grounded press roll is through a special cable to a panel, which contains the recording apparatus and a special control unit which is connected to the Louis Allis 10 H.P. Ajusto-Spede motor. This motor contains an eddy current clutch as an integral part.



Double size vat system, squeeze roll pressure assembly, with control panel.

### The Cylinder

The Model C High-Speed Slasher is built with four five-foot cylinders, mounted on high-duty SKF ball bearings, which are in turn supported on massive structural mountings. These cylinders are built with a dished head, which, without any appreciable increase in weight, adds to the strength both under pressure and compression. The new design eliminates the use of tie rods, which have been a source of potential trouble due to electrolysis, leaks around joints, and other numerous annoyances. On account of the large air space between the dished head and the outer shell, these new cylinders require no covering of asbestos or other insulating material.

The drainage within the cylinder is effected by a bucket system, which, after collecting the condensate discharge it through the Johnson joint, which is self-sealing, leak-proof, and practically free from maintenance expense.

Live steam for the cylinders on slashers equipped with automatic controls is regulated by one of two ways. One system uses the temperature of the condensate to actuate pilot controlling the inlet valves; the other uses the effect of temperature within the cylinder to motivate a pressure controller. With this system, the condensate is removed by a set of Strong bucket traps, or the Webster system.

All of the cylinders are equipped with automatic pressure and vacuum relief safety valves.

The first and second cylinders are driven by contact with the yarn. The third and fourth cylinders are positively driven by a train of gears originating in a bevel on the side shaft, and terminating at a ring gear fastened to the cylinder ring. Included in this assembly is the self-releasing gear for slasher drives. This device, by means of an over-running pawl, releases the positive gear drive from action whenever the speed of the yarn sheet, for any reason, becomes greater than the surface speed of the cylinders. This device prevents loss of weaving strength due to loss of elasticity of the yarn which would result from undue stretching while the sheet is only partially dried. With this device, used in connection with the stretch control described later, the stretch of the yarn can be held to 1% or less, and within narrow predetermined limits.

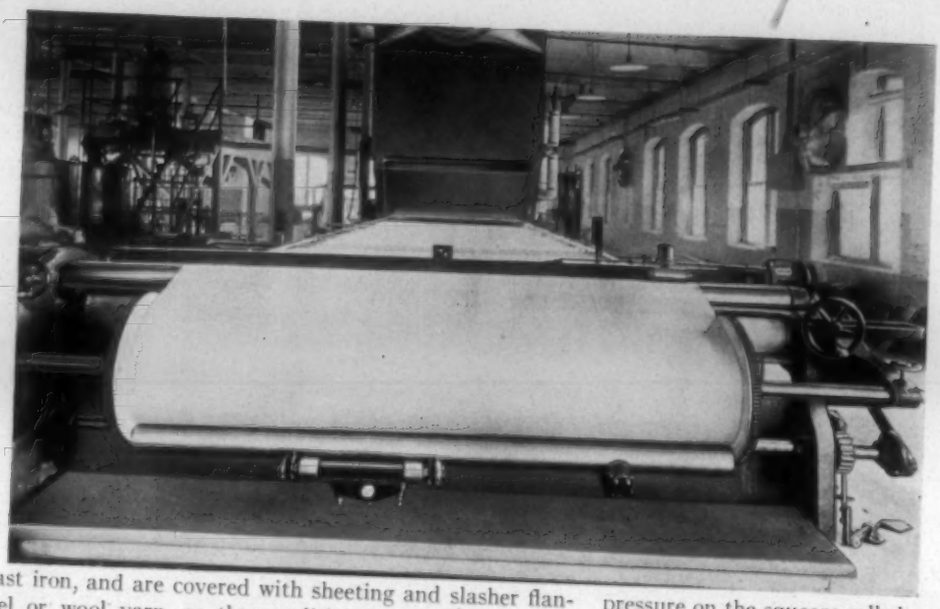
### The Cylinder Enclosure

High-speed slashing depends for its efficiency upon the rapidity with which the moisture-laden air is removed from contact with the drying yarn. In the High-Speed Slasher, a corrosion-proof housing is furnished as an integral part of the unit. The design provides for a complete and rapid removal of the moisture-laden air by a high-duty, high-speed fan, which moves the mass of wet air at high velocity until it is finally discharged into the atmosphere. Steam pipes are placed at strategic locations with the enclosure to prevent condensation of the moisture, which would cause soft and wet spots in the warp. Conveniently located cleanout doors afford access to the interior of the hoods, so that the dust, lint, and other accumulations which collect on the side and top of the hood, and on the steam pipes, can be readily removed. The fan, especially designed for this service, is driven by a direct-connected motor.

### The Size-Box

The new size box, built of heavy copper, is braced at all points of stress and strain so that it carries the heavy weight of size mixture and the large and heavy squeeze rolls without distortion or deflection. For slashers designed to run wide goods and extra heavy sleys, two vats are used—one for the top shed of yarn, the other for the lower; these two sheds are kept separate and are combined at the third cylinder.

Each vat contains a ribbed immersion roll, with its raising and lowering gear and two 9″ heavy copper size rolls, mounted on tightly sealed anti-friction bearings, driven by large but bevels. The squeeze rolls are made of



Front view of the Model C High-Speed Slasher.

cast iron, and are covered with sheeting and slasher flannel or wool yarn, as the conditions may require. The squeeze rolls in this slasher, instead of running free in a "U" bearing, and depending upon gravity to secure the pressure required to obtain penetration and wringing of the warp, are mounted in a cradle which securely holds the anti-friction bearings fitted to the squeeze-roll gudgeons.

### Extra Pressure Squeeze Rolls

This cradle has a vertical shaft at the center; the lower end of this shaft carries a piston working within a large air cylinder. The action of the piston within the cylinder is controlled by a set of air valves mounted on a conveniently placed panel. One set of valves is used to create a pressure on the squeeze roll, far in excess of the pressure created by gravity, the other set of valves being used to raise the squeeze rolls, either to wash them at the end of the day's run, or to reverse their position, a practice which has been very successful in increasing the useful life of the queeze-roll coverings, as well as improving the uniformity of the sizing application.

With the ability to change the position of the squeeze rolls, it is possible with no lost time and without any heavy lifting, always to have a well-conditioned covering on the finishing roll, while the new covering is broken in on the first roll. The results of sizing with this increased pressure on the squeeze rolls have been eminently successful. It has been found that with the same, or even less consumption of size, the actual gain in size by the warp has increased, the penetration is more uniform, the drying more even, and there is less shedding in the weave shop.

### The Stretch Control

Back of the size box, and driven off the side shaft of the slasher, the stretch control assembly is used to draw the yarn from the section beams, and to deliver it to the first squeeze roll in a condition which assures full penetration of the size, and no harmful stretching due to contraction of the yarn as it passes from the dry to the wet state. In other words, the tension on the yarn from the time it leaves the nip of the stretch control roll until it passes under the first squeeze roll is just enough to keep the yarn from rolling or kinking and sufficient to keep it in proper order.

The stretch control, on account of the large arc of contact between its draw roll and the yarn, is able to effect an equalization in the tension of the yarn sheets drawn from different section beams. It is able to do this because there is positive tractive effect on the yarn as it grips the cloth-covered roll of the unit, as contrasted with the constant slipping of the yarn when the only tractive effort

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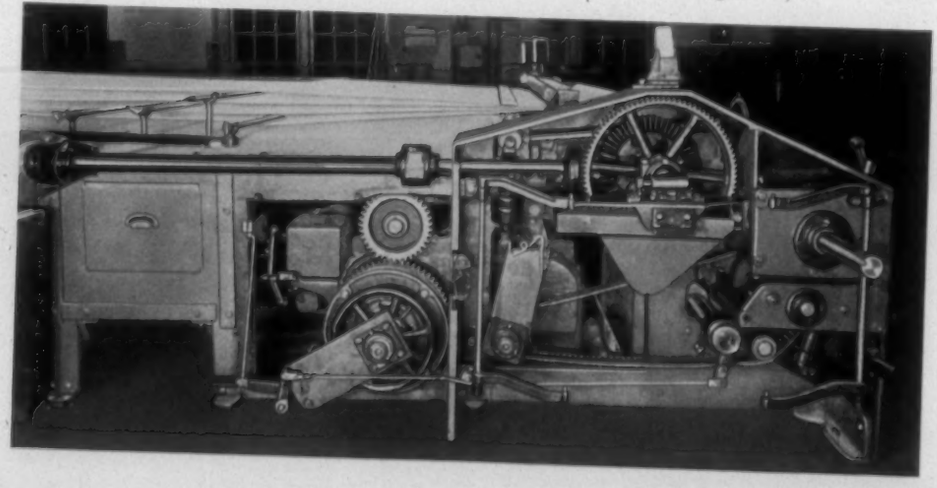
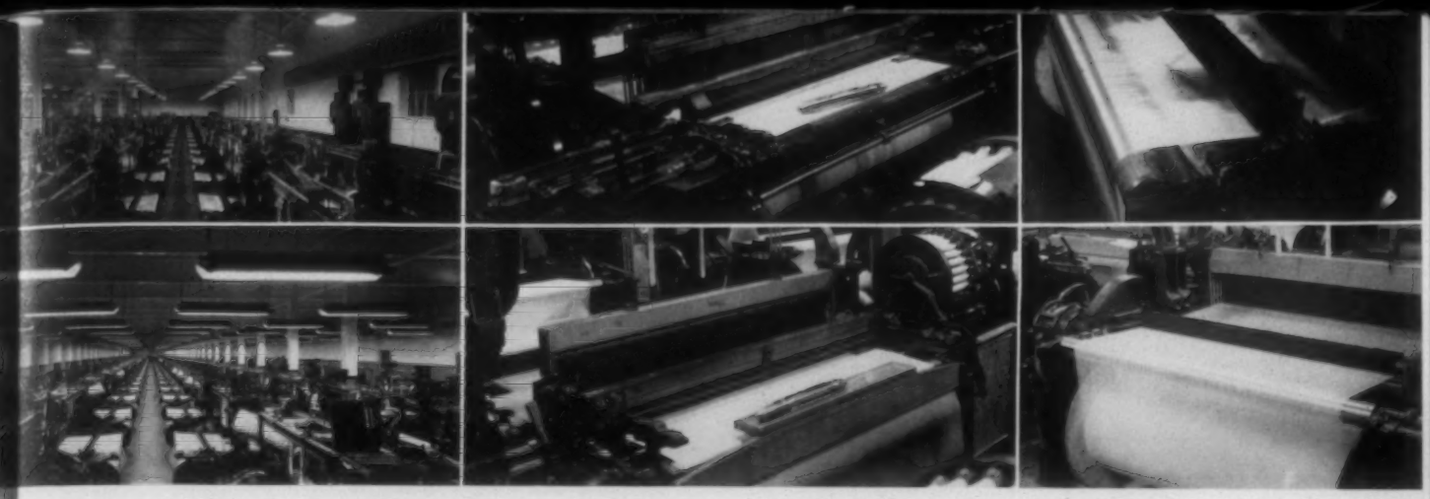


Side view of head end, showing motor, Reeves drive, and gearing.



# Fluorescence Fits The Weave Shed

By D. P. Caverly

Commercial Engineer

Hygrade Sylvania Corporation

IN THE PAST it has been somewhat difficult for illuminating engineers to devise a completely satisfactory system of lighting for weave rooms. The characteristics of the rooms, as well as the looms themselves, presented problems of light distribution, glare, and shadows which were not easily solved with incandescent lamps as the light sources.

The reason for this difficulty lay primarily in the fact that incandescent lamps, although providing adequate amounts of light, if properly installed, were physically small, thereby producing rather harsh shadow conditions on the work. In addition, their concentrated brightness caused annoying specular reflections, particularly on silk and rayon goods, and a certain amount of direct glare as well. Of course, it is possible to overcome these conditions through the use of correctly designed lighting units which provide a large area of low brightness, but such equipment is usually quite costly. Consequently, it has been necessary for lighting men to keep their recommendations within the limits of what mill operators thought was a justifiable cost by specifying installations which presented the least number of evils, rather than systems with equipment which would provide first-class illumination from a quality standpoint. As a result, we have had very few examples of ideal lighting for weave rooms.

About four years ago a most complete survey was conducted to determine the best method of lighting the weaving operation. It was concluded that a relatively large lighting unit should be suspended directly over the loom in order to relieve the shadow condition, and that if reflectors are placed over the work alley in back of the weavers, annoying shadows are produced on the work. In this report it was admitted that the ideal system would not be acceptable from a cost standpoint and that a less expensive scheme of one unit per two looms located over the work alley would be the best alternative.

Another study was carried on a year or so later, more specifically for wide goods weaving, with the result that it was recommended that units be suspended over aisles to eliminate shadows on the work from loom parts. Although shadows from the operator's head and shoulders fall upon the work with such an arrangement it was felt that he usually stood in such a position that the shadows did not prove objectionable.

It is obvious from the apparent conflict in the findings of these studies that the best solution to the problem of loom illumination had not yet been found. While there was a difference in the characteristics of the two types of looms under consideration, it is evident that the recommendations were the best possible with incandescent lamp equipment which was reasonable in cost.

Although fluorescent lamps have been advantageously used in all types of industrial applications, the use of them for lighting weave rooms is outstanding in its success. Annoying shadows on the reed, heddles, in back of drop wires, and from the body of the weaver can be entirely eliminated without a sacrifice of illumination quantity. Furthermore, the linear sources of low brilliancy relieve specular or sheen conditions often found on silk and rayon warps. In addition there are advantages to the coolness and color of fluorescent lighting which make it far superior to other methods providing, of course, the installation is properly designed.

Figures 1 and 2 are comparative photographs of similar weave rooms. The incandescent installation with typical standard reflectors, shown in Fig. 1, represents what has been recommended as good weave room lighting. Although it is as good as could be obtained at a reasonable cost, the shadow and specular conditions on the work can easily be seen. Fig. 2 shows what can be done with properly designed fluorescent equipment correctly installed. One unit containing two 40-watt daylight fluorescent lamps, corrected for power factor and stroboscopic characteristics, is mounted over the center of each loom at right angles to the harness.

Figures 3 and 4 give a close-up view of the backs of the looms in Figures 1 and 2, respectively. These photographs have not been retouched in any way and show clearly how the poor specular and shadow conditions

(*Continued on Page 148*)

Technical Laboratory, Deepwater Point, N. J.—E. I. DuPont de Nemours & Co.

# The Development and Growth of
# The American Dyestuff Industry

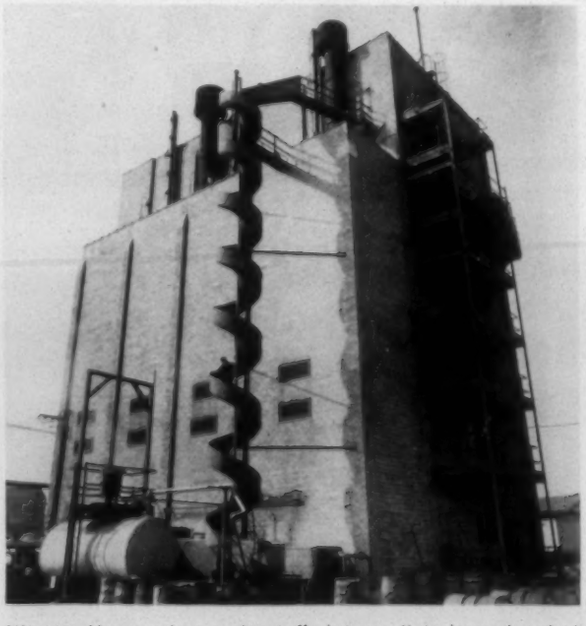
By Ansco G. Bruinier, Jr.

Dyestuffs Division, E. I. DuPont de Nemours & Co.

WHEN one considers the magnitude of the American dyestuffs industry as it exists today, it seems difficult to realize that this vital industry came into being about 25 years ago. The story has often been told and handed down through the years, how dependent this country was upon foreign sources of supply for its dyes, medicinals and other chemicals. But a few words bear repeating because this dependence actually forced us into an industry about which we knew very little.

True, the manufacture of coal tar colors in the United States had been in existence since 1879. Prior to 1915 it had never become a factor in supplying the American market. The American manufacture was confined almost entirely to the "assembling" into finished dyes of coal tar intermediates imported from Europe. In its entirety it represented less than one-tenth of the activity existing in any one of the larger companies producing synthetic colors abroad.

In commercial value, the dyes annually consumed in the pre-war period were insignificant when compared with the annual output of any one branch of the great textile industries. They were only a small fraction of the cost of finished commodities of leather, paper and many other materials on which they were used. In the production of printing inks, carbon papers, typewriter ribbons, paints and varnishes, dyes played an important role. But the indispensability of dyes to all these industries became more evident than ever when the first world war suddenly cut off ninety per cent of the needed supply.



Nitrator House, where a dyestuffs intermediate is produced at the Deepwater (N. J.) Plant of E. I. DuPont de Nemours & Co.

# Thirty Years of Progress

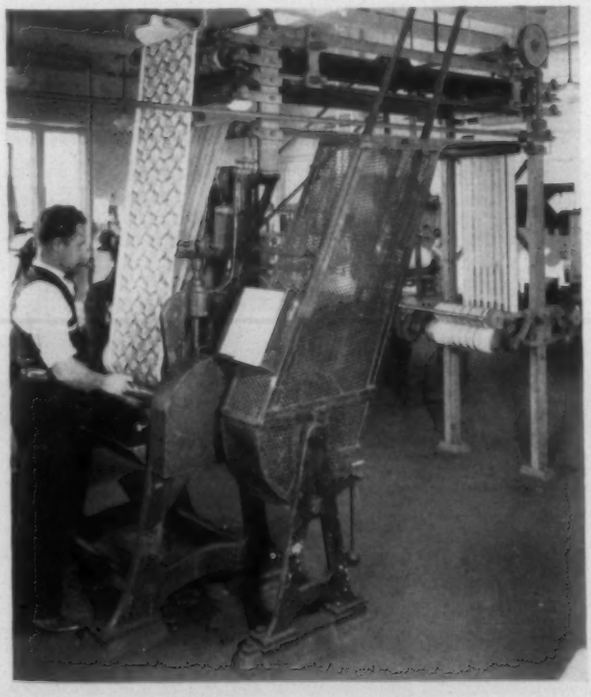
Textile plants had to resort to natural coloring materials and old, discarded dyestuffs of all kinds were resurrected and put to use.

The seven American assembling plants took immediate steps to enlarge their productive capacity through the production of the necessary intermediates. However, it was only natural that they should follow the line of least resistance and manufacture first those dyes for which the processes were simplest and the materials most readily available: The inability of these plants to furnish more than a minute percentage of the dyes needed to keep plants running was quickly realized. Textile consumers pleaded for dyes of almost any description for which they were willing to pay fabulous prices. Rhodamine B Extra was practically worth its weight in gold. Hoarded stocks which originally sold for seventy-five cents per pound were turned over and over, passing through many hands and by the time the product actually reached the ultimate consumer the selling price was $125.00 per lb.

Cheap direct blacks which sold from twenty to twenty-five cents a pound were bought and used in ton quantities. Hundreds of barrels containing 400 pounds each were resold to consuming industries at $1.50 per pound.

During this period, many inexperienced individuals went into dyestuff business either as agents or manufacturers. They envisaged golden opportunities in this field and quite a few of them actually did reap a harvest. However, those who attempted to establish dyestuff manufacturing plants without the necessary technical background and experience, soon learned that it was a complicated business in which the pitfalls were many.

About this time, 1916, textile consumers made strong representations in Washington for action to relieve this distressing situation and this, too, crystalized the thought that America must create its own dyestuff industry. It must be made self-sufficient and be dependent upon itself alone. During 1917, eighty-one establishments entered the dyestuff production field. The range of colors produced was limited and the total output amounted to 45,977,246 pounds.



Laboratory Printing Machine

Executives of the Du Pont Company felt that this was a logical field for them to consider. They weighed the question carefully and seriously—both its advantages and disadvantages. All signs seemed to indicate that this was an undertaking for which the company was well fitted. They were already established in a number of branches of the chemical industry and had some experience in producing coal tar derivatives. They were equipped with the necessary resources of both men and money to enable them to undertake the necessarily long siege of developing this new industry. Tremendous obstacles had to be overcome. Followed months of experimentation and research. Plants had to be constructed to produce both intermediates and dyes on a broad front. The money invested was considerable; the losses were heavy. The first product manufactured by Du Pont was synthetic indigo followed shortly thereafter by sulfur black both of which were perfected and placed on the market early in 1917. Research continued at an accelerated pace and not long after came acid and chrome colors for wool, direct, developed and the trade-marked Naphthanil colors for cotton, and in 1919 basic colors.

Chemical plants are usually identified easily by the maze of pipe lines, the tanks and tank cars and other equipment. This view reproduced is typical, although it shows only one small section of the works area at the DuPont Dyestuffs Plant in New Jersey.

Other progressive American concerns were by no means inactive during this period of early development and they each contributed a most vital share toward the building of this great industry. In 1918 the total output of dyes had risen to 57,155,600 pounds. More than 300 different dyes were made in the United States and many dyes which were missing in 1917 appeared on the market in 1918. At that time the American industry was particularly strong in the azo and sulfur groups of dyes.

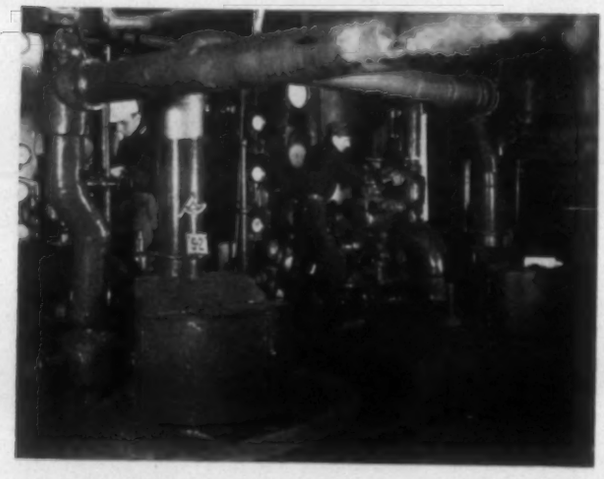
## Vat Colors

The lack of fast colors was very evident during the early years of dyestuffs development in the United States. The requirements of woolen mills were satisfied quicker and much better than those of cotton finishers. Because of this obvious need, more attention was given to the production of the more chemically complex substances

as vat dyes for cotton. These products represented the fastest known class of cotton dyestuffs developed up until that time, and for that matter, still are. The information contained in literature covering this subject, however, chemistry involved." "In many branches of the chemical that it was necessary to start from scratch and learn how to make them.

One of the big stumbling blocks proved to be the difficulty of obtaining the vital intermediate anthracene, the backbone of the anthraquinone series of vat colors. While it is present in American coal tar in quantities that in the aggregate are sufficient, its recovery is difficult because it forms only about 0.3 per cent of the tar. It had not been recovered on a commercial scale prior to the middle of the year 1917 and many technical and commercial difficulties had to be overcome before it was manufactured in sufficient quantities and at a price comparable with that of other crudes. This intermediate is now produced synthetically.

In the summer of 1919, Du Pont announced the first American production of anthraquinone vat dyes and their intermediates, followed in 1920 by the thioindigoid types. This was looked upon by both manufacturing and consuming industries as an outstanding accomplishment. Products included in both groups were found equal in all respects to their imported prototypes. Their development again associated fabrics to dye and print materials with high quality colors—colors that would be extremely resistant to most of the severest color-destroying influences. The record of vat colors in the United States over the past twenty-two years or so is truly a remarkable one. There are today seven American manufacturers producing over seventeen and a half million pounds a year. The unexcelled fastness of vat dyes on all types of vegetable fibers is so well recognized by the textile industry that their use is continually being broadened. The year 1941 will see cotton and rayon sportswear, work clothing, uniform cloths and many other fabrics in which serviceability is important, dyed or printed with vat colors.



Chemical manufacturing at the Dye Works has little of interest to the casual spectator, for much of the processing takes place in closed containers. The point is emphasized in this view of a dyestuff intermediate still in operation at the DuPont Deepwater Plant.

### Public Support

One might write at considerable length of other significant developments of the early years during which the industry struggled so valiantly. Had it not been for the public interest and support given to the American dyestuffs producers by Congress, probably the industry would never have survived. The period from 1919 to the end of 1922 was a precarious one inasmuch as the foreign dye plants were rapidly rehabilitating themselves and all manner of political pressure was exerted through their emissaries in order again to open this market for their output. Fortunately the defense characteristics of the industry were recognized by the Government and its protection was continued. With this support the industry felt free to forge ahead. From time to time, numerous other products were added to the range of existing dyes, new specialties were created such as dyes for the lake and printing ink trade, special colors for paper and for synthetic fibers.

How these policies and ideals have borne fruit can readily be seen by the chaotic condition of the world today. Gradually this relatively small but vital industry has grown. American made dyestuffs are produced in large quantities and are thoroughly dependable in every respect. They are equal to and even superior in some cases to their comparable foreign types. Color consuming industries have at their disposal an annual production of over 120,000,000 pounds of coal tar dyes embracing more than one thousand different types from which its needs are adequately taken care of. There are complete ranges of colors for dyeing cotton, silk, wool, rayon and acetate fibers, paper, leather, etc. And at prices that compare more than favorably with the high costs of initial production. In 1917 the average price per pound of all dyes was $1.26. In 1939 the average value per pound of all dyes sold was $0.61. Not only does this represent a considerable drop but in 1939 consuming industries were using more of the complex and higher-priced types of dyes than ever before.

### Research and Results

Research was certainly responsible to a great degree in developing the dyestuffs industry in America. It was born of research and by research it has lived and prospered. That is still true today, perhaps more so than ever. In this country when we first entered this field on a large scale we were hampered by the fact that research was employed mainly in other fields, but we had chemists who were trained in the formal methods of scientific investigation. Some of them became excellent plant supervisors and others of particular aptitude grew to be research workers of a very special type. The outcome has proved the worth of the American chemist.

At the time the dyestuff industry was started in this country, emphasis was laid on the fact that it was without a doubt a key industry, not alone because of its relation to national defense, but to an equally important national balanced manufacturing system. The non-dyestuff activities of the dyestuffs industry during the period in which the United States has been a real factor in the field have gone far beyond what had originally been surmised.

Thus it was that through the knowledge and experience gained in the development of dyestuffs and inter-

*(Continued on Page 128)*

# Textile Dyeing And Finishing Aided By Use Of

# STAINLESS STEELS

By Edgar Schellenbach

American Rolling Mill Co.

FOR more than 50 years, alert leaders in the huge U. S. textile industry have taken advantage of a growing list of opportunities to lower processing costs, cut down rejects and improve the quality of their products.

Like every other industrialist faced with a highly competitive situation, the textile manufacturer who would challenge his field has found it necessary to meet change with change. Perhaps the most important comprises developments in wet processing equipment.

The history of this equipment—from wood to the chromium-nickel stainless steels—spans many decades. No longer a newcomer in the field, the stainless steels now are readily accepted by textile mills as well as equipment builders.

Introduction of this rustless metal came after many experiments with other materials. About 1900, most dye work was done in wooden equipment because corrosive solutions caused ordinary iron and steel to rust. Wood presented its problems, chiefly because it was absorbent, and difficult to clean.

### Metal Easy to Clean

With the advent of copper, and copper alloyed with other metals in the industry, processing witnessed a change. Textile dye bosses found these metals easy to clean, easy to handle, and non-absorbent. But copper alloys had serious drawbacks in certain solutions; chemical reactions often caused dulling and saddening of colors. In some cases it was difficult to match dyes—expensive to achieve bright and true colors.

Then in 1927, stainless steel became a new beacon in the industry.

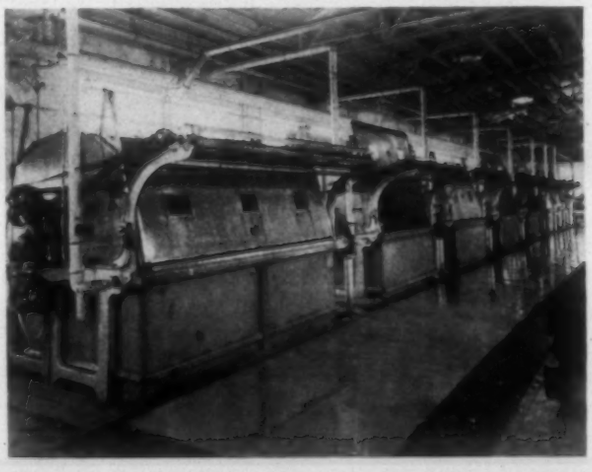
It was not long until an enterprising textile manufacturer installed several dye kettles made of this modern metal. Naturally he conducted numerous experiments under various service conditions.

Interested in new markets for their product, the producers of stainless steels invited the assistance of textile operators in studying the possibilities of this metal for dyeing equipment. By 1935, sufficient information was available to prove the desirable properties of stainless for textile applications.

### Two Classes of "Stainless"

It is not necessary to study the complete history of stainless steel here. "Stainless," as it is known in the industry, comprises a number of alloys of various chemical compositions, each with different physical and mechanical properties, corrosion resistance, and other properties. They are divided into two general classes: the straight chromium and the chromium-nickel steels. For most textile mill applications, only the alloys combining chromium and nickel need be discussed.

Chromium is the element that provides greatest corrosion resistance and chemical passivity under oxidizing conditions. This alloy is believed to develop an invisible oxide film on the surface of the metal that is impervious to penetration by many kinds of chemicals. Even if it is destroyed, the film renews itself as soon as the metal is cleaned and exposed to the air. Since the metal is solid stainless steel, this protective function is repeated indefinitely.



Nickel is added to improve the physical properties and also to provide better corrosion resistance, especially in the presence of reducing chemicals, mineral acids and organic compounds.

Such an alloy is Armco 18-8, with the following analysis:

| | |
|---|---|
| Carbon | .08% or more |
| Manganese | 1.25% max. |
| Phosphorus | .03% max. |
| Sulfur | .03% max. |
| Silicon | .30-.60% |
| Chromium | 17.5-20% |
| Nickel | 8.00-10% |

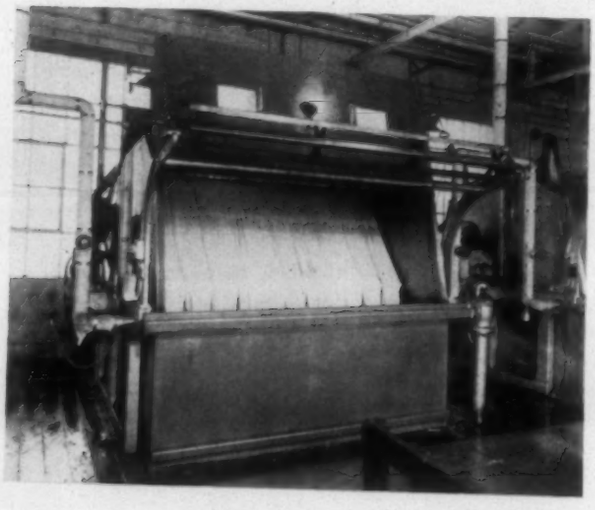
### Ductile, Easy to Weld

Stainless steels of this composition are ductile and possess high tensile strength. Moreover, they can be welded without loss of corrosion resistance, strength or ductility. 18-8 stainless is the most widely used for dyeing, bleaching and wet finishing requirements.

Another grade of stainless steel containing about 18 per cent chromium, 12 per cent nickel and from 2 to 4 per cent molybdenum is also widely used in the industry. Molybdenum greatly increases the resistance of the stainless alloys to solutions containing such chemicals as hydrochloric, acetic and formic acids, or their salts.

### Chromium is the Key

It will be seen that the chromium content of both these grades is high—about 18 per cent. This is because chromium is the only alloying element that can give ferrous metals almost complete corrosion resistance. Eleven per cent or more, depending upon the amount of carbon present, is necessary to make the metal truly stainless in nature. In all cases more than the theoretical amount of chromium necessary for corrosion resistance is added to the composition.



The stainless steels possess great strength and a high degree of corrosion resistance *at elevated temperatures*. These qualities make them admirably suited for dyeing and wet processing operations. Care must be used, however, in selecting the right grade, since no one grade of stainless is a cure-all for corrosive troubles. Before any doubtful selections are made, consult a stainless steel producer for safe, conservative advice on any of your problems.

Keeping in mind the basic properties of stainless steel, it might be well to list its general advantages in textile processing before looking over its benefits in specific applications.

### Solves Major Problems

Surveys show this rustless metal aids materially in giving greater output per man-hour, easier maintenance of uniform standards of quality, and greater output from each machine—all because of higher efficiency and greater flexibility of equipment.

The stainless steels have helped many textile manufacturers solve three major problems: the maintenance of machinery working under severe corrosive conditions; the loss of textiles because of stain and discoloration; and the deterioration of processing solutions by reaction with equipment materials.

Briefly, then, here are its advantages in terms of everyday mill operations:

1. Stainless eliminates boil-outs. A quick rinse with a hose removes all traces of color. This accelerates processing operations, cuts profitless clean-up time. In most cases, fewer stainless steel units are needed to achieve the capacity of other kinds of equipment.

2. It retains its hard smooth surface. Even after long service, cleaning is easy.

3. When the correct grade is used with proper care, it is not corroded by bleaching, dyeing and other processing solutions.

4. It assures longer service life of equipment; reduces time lost for repairs because of its corrosion resistance and durability.

5. It does not react with processing solutions. This eliminates off-colors, color saddening, and spotting of fabrics and yarns. In many cases this also makes it possible to use solutions much longer.

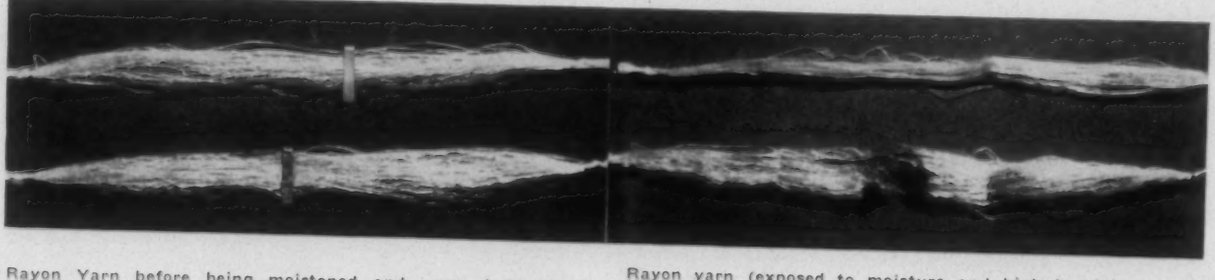
6. It eliminates the danger of color carry-over from one solution to another.

7. Stainless eliminates discoloration of yarns and fabrics frequently caused by rusted or corroded equipment.

8. There is no need to use colors "corrected" for reaction between dye solutions and the metal of the equipment.

9. Fabrics won't snag on the clean smooth surface.

10. Stainless steel is a solid metal and naturally has no plating or lining to chip or wear off. This means no



Rayon Yarn before being moistened and exposed to high humidity atmosphere. Stainless Steel Clip at top; Iron Clip at bottom.

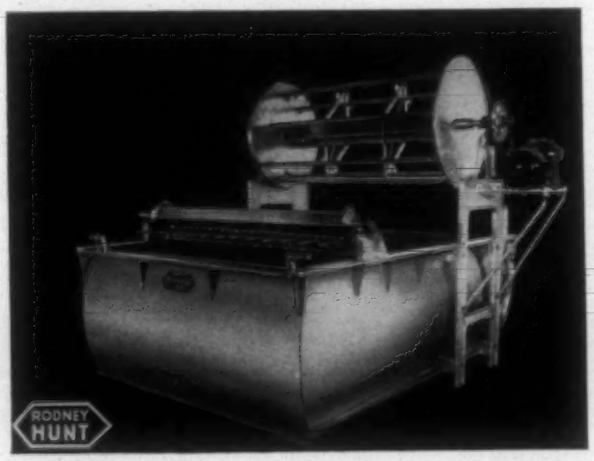
Rayon yarn (exposed to moisture and high humidity) after breaking in tensile machine. Note the lower portion of yarn; break occurred at point of contact with iron clip. The top strand, clipped with stainless steel, withstood 23 lbs.; the lower strand broke at 4¾ lbs.

relining, no discarding of equipment because of surface damage.

### Stainless and Dyes Work Together

These are the overall advantages of stainless steel. Now we come to a study of its specific uses in textile finishing plants. Foremost on the list are bleaching and dyeing. Stainless steels and dyestuffs have no affinity for each other; their combined properties work together to produce positively true colors.

Perhaps the most critical test is provided by the wool-dyeing industry, where metals are subjected to corrosive




conditions far more severe than in other textile processing. The wool dyer is chiefly concerned with "What will it do to the colors?"

Past experience with other metals reminds him of the dangers of dulling and saddening of colors, caused by hydrogen liberated from the acid of a dyebath when it reacts with a metal, or by the absorption of a metallic salt.

This is not the case when the proper grade of stainless steel is used. It is not affected by the severely corrosive conditions induced by acetic, formic, sulfurous and sulfuric acids. Because of the nature of reagents employed in this kind of work, Armco 18-12-MO should be used, as it has an increased resistance to strong acid solutions.

### No Color Saddening

Experience has proved that this alloy does not sadden acid and acid chrome dyes as do many copper alloys. It also eliminates the necessity of adding ammonium thiocyanate or sodium thiocyanate to the bath to form an insoluble coating of copper thiocyanate on the tank. In copper and copper alloy equipment, this is often necessary to give temporary relief from dulling of colors.

Tests in service have shown that in wool dyeing Armco 18-12 MO is completely resistant to the acids used; and that colors are identical with those obtained in a laboratory beaker.

Corrosive conditions met in dyeing cotton, silk and rayon are less severe than in dyeing woolens. Armco 18-8 is well adapted for cotton dyeing. It has no effect on direct, vat, sulfur, or diazotized and developed colors. The sulfur colors do not produce the dark discoloration of metallic sulfides. Nor does the nitrous acid used in the diazotizing process attack 18-8 stainless.

### No Snagging on Smooth Surface

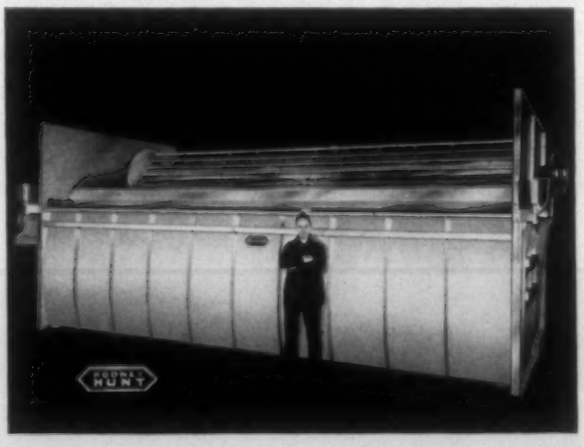
Because of the nature of fibers used, the silk hosiery dyeing industry has benefited greatly by the use of stainless steel equipment. Delicate fibers do not snag on its hard smooth surface. The alkaline and weak acid solutions encountered in silk and rayon dyeing do not attack Armco 18-8 stainless steel, nor do off-colors result from its use in equipment.

One of the most important advantages of stainless steel in rayon processing is the prevention of excessive tendering. (Illustrations on these pages show close-up photos after tests were made.) Tiny particles of metal from such sources as shafting, reels and other iron equipment frequently cause tendering. The pictures of tests on moist rayon clearly reveal the injurious effects when strands of rayon are exposed to metallic iron. The smooth surface of stainless steel resists iron pick-up by the fiber.

Next is bleaching. Agents used in bleaching are highly active substances. Container materials that have been widely used for this application in the past suffer from many limitations. For many years concrete, soapstone, earthenware and wood have been used in the presence of bleaching agents. These agents are usually composed of chlorine or peroxide for bleaching piece goods, while peroxide and hypochlorites are used for cotton and rayon. Only a peroxide bleach is used for silk or woolen goods.

### How White is White?

Colorists say the whiteness of any material is due in varying degrees to the reflection of the rays of the spectrum of pure daylight. Therefore, the object of bleaching is to remove any foreign matter that interferes with the




reflection of these light rays. In this respect, one of the greatest dangers is the presence of metallic impurities in the bleach bath. These impurities are apt to cause stain and discoloration of the product, as well as uneven bleaching and early decomposition of the bleaching solution. Stainless steels help to do away with all of these undesirable features in bleaching equipment.

(*Continued on Page 130*)

# Progress In Textile Electrification

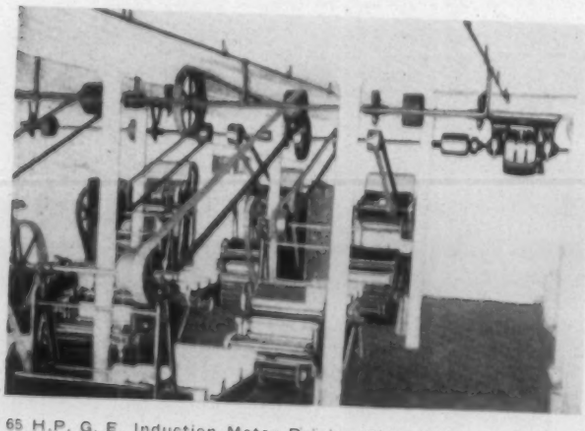
By E. A. Untersee
Industrial Department, General Electric Company

"I HAVE WATCHED all day and those wires haven't moved yet," said an old gentleman in 1894 with reference to the power lines that furnished current for the new installation of electric motors in the Columbia Mills, Columbia, South Carolina.

Looking backward, this ingenuous remark is amusing but, at that time, in most every part of the country, electricity was an unfamiliar phenomenon. There are even instances of people in rural districts placing pails beneath the wires to catch electricity that might fall off. It is a matter of record also that shortly after the original electrification of the Columbia Mills, the Pelzer Mfg. Co., Pelzer, S. C., accepted a contract involving the electrification of their mill and when this negotiation became generally known, the price of Pelzer stock fell $25.00 a share in the Charleston market.

At the time of the Columbia Mills installation, so far as is known, no electric motor had ever been used in the manufacturing department of a textile mill. In two cases a synchronous motor had been provided to furnish supplementary power to the main shaft. In one other mill, a small direct-current motor had been used to supply power to the carpenter shop.

The original Columbia order, placed in August, 1893, was for two 500-kw, 3-phase, alternating-current generators and 17 65-H.P. induction motors. By the time the



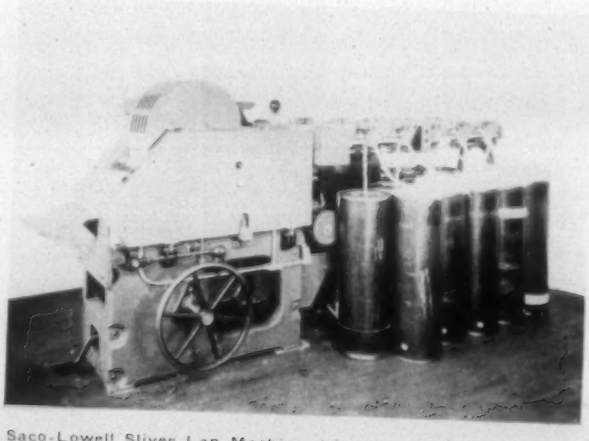
65 H.P. G. E. Induction Motor Driving Picker Room, Columbia (S. C.) Mills Co.

electric equipment was built, the machinery plans of the mill had been completed and all of the floor space had been utilized for the textile machines. There was no room for the motors on the floor, but there was space on the ceiling. The motors, therefore, were suspended upside down between the floor timbers above, and for the first time two pulleys were used at each end of the motor shaft, and from each pair of pulleys a belt drove in opposite direction, thus relieving the strain on the bearings. This arrangement became the pattern for all subsequent group drives.

The electrical equipment was started April 15, 1894. In May, 1925, the electric equipment was still in operation and only seven stators had been rewound. Fig. 1 shows one of the original electric motors suspended from the ceiling in the picker room at the Columbia Mills.

After the success of the installation at Columbia Mills became apparent, electrification began to spread quite rapidly. Many textile mills, particularly in the South were established on small hydro sites which had been developed. Thus, in many of the early textile mill electrifications, power was generated by water. Most of the original installations had been mechanical drives, later converted to electric drives.

At first, about the only advantages electric power was



Saco-Lowell Sliver Lap Machine driven by G. E. Gear-Motor, totally enclosed non-ventilated squirrel-cage Induction Motor—1.5 H.P., 273 R.P.M.

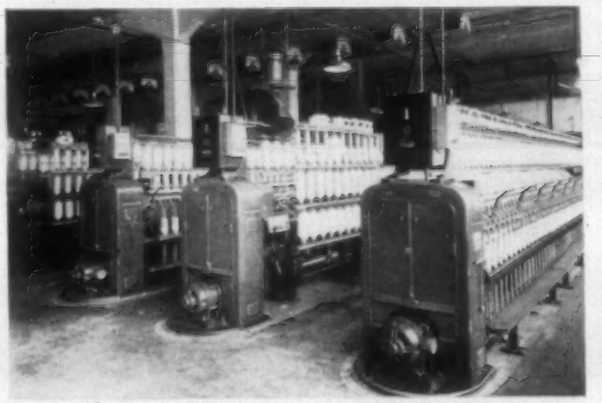
thought to bring were the elimination of the main line shafting, or an opportunity to develop a water power site which heretofore had been unusable. In cases where electric power was available from utility companies, an opportunity was present to cut fuel costs. However, it was not long before the advantages of breaking the load up into smaller groups became apparent and thus was born individual drive of textile machinery. The first individual drive of a spinning frame was put in service in 1906 at the Profile Cotton Mill, Jacksonville, Ala., where a 5-H.P., 60-cycle, 550-volt motor was used to drive each

spinning frame. The first mill, however, to install individual drive throughout, with the exception of the cards and roving, was the Dunean Mills, Greenville, S. C., which made this installation in 1911, the year that TEXTILE BULLETIN was established. The first individual drive to be established throughout an entire textile mill did not occur until 1921 when the Dixie Spinning Mill, now the Dixie Mercerizing Co., Chattanooga, Tenn., erected a new textile spinning mill.

### Advantages Brought To the Textile Industry By Electricity

The advantages which electric drive brought to textile operators, with some few exceptions where fuel costs were substantially reduced, were an increase in production per spindle-hour of mill operation; an outstanding gain in quality of finished goods made possible by the constant, uniform transmission of power to various machines; and easier and safer operating conditions for employees.

These advantages have continued through the years to



Whitin Silent Speed Roving Frames, Model L-4 (1937), driven by Squirrel-Cage Induction Motor, 5 H.P., 1200 R.P.M., 550 volts, 3-phase, 60 cycles.

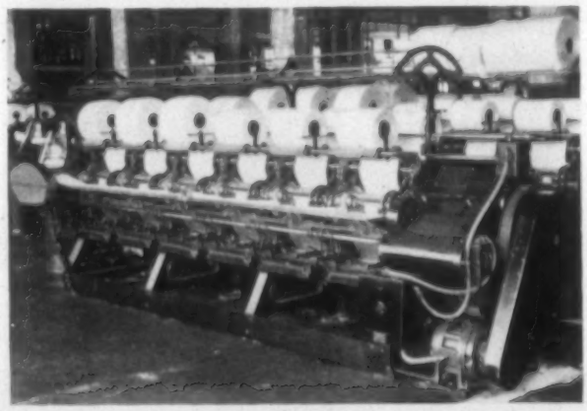
the present day and have made the textile industry the most completely electrified industry in the country.

It would be impossible within the scope of this article to enumerate all of the advances and refinements that have been made in connection with the application of electricity in the textile field since the Columbia Mills installation. Attention, therefore, will be devoted principally to a consideration of the more noteworthy applications which electrical engineers, working closely with textile and machinery manufacturers, have developed over these years.

The apparent saturation of the textile industry with electric equipment might leave the impression that there was little to be done to improve the operation of textile machinery. New machines and new methods of manufacture are being made available continually, and these improvements coupled with the new methods and machines produced by the electrical manufacturers assure increased production and higher quality. New demands for material and new scientific developments demand continuous research and investigation for further improvements, and it appears that we are embarking on new and untried fields which should give greater benefit to the industry through the further use of new devices contributed by electrical manufacturers; many of these devices, developed for other industries, have found a valuable place in the manufacture of textiles.

### Preparatory Machinery

Since the first installation, the alternating-current induction motor is the motor most commonly used. All preparatory machines, though different in design, operate in lint-laden atmospheres and require motors properly designed to operate under these conditions. For many years, induction motors were built with screens fitted over the



Saco-Lowell Comber (1927) Squirrel-Cage Induction Motor, 2 H.P., 1200 R.P.M., 550 volts, 3-phase, 60-cycle.

end shields to keep the lint out, and even today this type of construction is still in use.

The screens on the motors required frequent cleaning, especially in the picker and card rooms, to maintain proper ventilation of the motors. In recent years, motors have been specially designed so the lint goes through the motor with the ventilating air, leaving no opportunity for it to collect and obstruct efficient operation.

New developments in machines for cleaning and blending cotton, and single-process picking equipment, demand the use of many individual motors. Their application to these machines is frequently such that without improved design and proper ventilation, motor application could not be made satisfactorily. Motors must be designed with strong and reliable mechanical features, as well as correct electrical characteristics, for each application to assure long, uninterrupted service.

In the card room, many mills still operate from group motors, but these groups are much smaller and more flexible than when the first large drives were installed. The motors are usually connected to the driving shafts by short center belts, or chains, which makes a neat and compact application. Magnetic across-the-line starting switches are used in the majority of these applications.

In mills where space between the cards permits, individual motors with special electrical characteristics for high-starting torques, are geared to the main cylinder. Starting and reversing switches are used, the latter for the operation of grinding the card clothing.

In the combed yarn process, used in many mills, the individual drive motor on the sliver lap, ribbon lap, and

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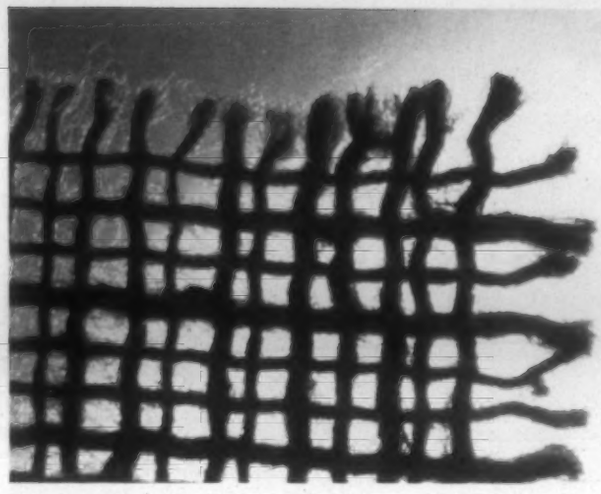
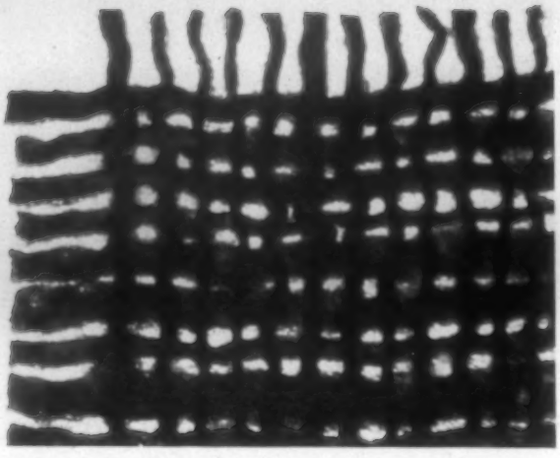


Before Sanforizing



After Sanforizing

# Problem of Cotton Fabric Shrinkage Solved With Sanforized-Shrunk Process

By Wm. H. Harriss

Cluett, Peabody & Co., Inc.

THIRTY YEARS AGO, as in ages preceding, the problem of shrinkage in cotton fabrics was approached by the general textile trade and the public somewhat in the same manner as when considering the weather—many people talked about it, but no one did anything about it.

During the former years, today, and probably for all time, we are still confronted with our inability to control the weather, but the cotton textile shrinkage problem, thanks to a certain pioneer, and to the joy of a long suffering public, has been solved.

Sanford L. Cluett

At the time of the first issue of the TEXTILE BULLETIN on March 2, 1911, very few people in the cotton textile trade spent much thought on the subject of eliminating shrinkage in cotton fabrics for the reason, as stated above, most of us placed it in the class of variable weather, as being one of life's nuisances the human family had to simply accept as inevitable, among other cussed things of life with which we are doomed to contend without much hope of relief, like poor kin, taxes, or the run in milady's hosiery.

This line of thought applied to the general public as well as the average textile man in those days, yet there were individuals in the trade who were seriously wrestling with this problem. Most of their first experiments and efforts were reflections from the woolen industry, where, from the very beginning, the shrinkage problem had to be immediately dealt with, owing to the nature of woolen and worsted fabrics. These presented such serious shrinkage that it was practically impossible to make them into satisfactory garments without first dealing with this problem. As is generally known, fulling, decating, steaming, and such after methods as "London Shrunk," or the cold water sponge, were developed years ago, and they are still used with variations in the woolen industry today.

It is quite natural therefore that those who pioneered in attempts to solve the shrinkage problem in cotton fabrics should have picked up and started with what the woolen industry had developed and used. However, it was soon found that these old methods of shrinking woolens did a very incomplete job when applied to cotton fabrics. As a matter of fact, it is pretty generally recognized that these methods even today do a rather questionable job on account of the lack of any scientific control or recognized shrinkage standards in the woolen industry.

To give a clear picture of the problems involved in shrinking these two different classes of fabrics, that is, woolens and cottons, it might be well to mention the fundamental differences involved. Woolen and worsted fabrics—in fact many other animal hair fabrics—have no

wash shrinking limit, on account of the nature of the component fibers with their characteristic overlapping scales or barbs, which, when washed and scrubbed, particularly in the presence of heat, tend to set up a ratchet effect between the individual fibers, resulting in what is known as felting, with its subsequent shrinkage of the fabric. Now this felting effect has no practical limit--continual washings produce continual shrinking—so that it immediately becomes a question just where one should stop shrinking these woolen fabrics to give the best result in wear and satisfaction in the subsequent garment. Should woolens be shrunk 1 per cent, 20 per cent, or somewhere in between? No recognized standard test has as yet been established to guide in each individual case.

All this is not true of cotton fabrics. If one continues to wash them, there comes a point when shrinking ceases, and as soon as this fact was recognized by certain scientific minds in the cotton textile industry, a standard method of washing was then demanded that would quickly determine the ultimate shrinkage in any given cotton fabric, as they all vary depending upon their construction. After many trials and laboratory tests, a method of washing was developed that would closely approximate the individual zero shrinkage, and subsequently the method was promulgated and is found in the U. S. Standard Textile Test Methods CCC-T-191a, and is accepted and used by the cotton textile trade to determine residual shrinkage.

During these many years, Sanford L. Cluett, well known mechanical engineer of Troy, N. Y., whose picture is shown, was attempting to solve this shrinkage problem in cotton fabrics, and after trying all the previous methods of shrinkage, including those of the woolen industry, and many others of his own devising, he finally invented and patented a unique method of shrinking cotton textiles by mechanical compression without the use of any chemical applications (see result in micro-photograph shown), the outstanding feature of which was that it carried a method of controlled shrinkage which was so absent in all of the other methods. This method was first used successfully by his own firm, Cluett, Peabody & Co., Inc., of Troy, for shrinking the fabrics to go into their Arrow shirts.

It met with such success in their own plant that pressure was brought upon him by the outside industry to allow the method to be licensed for use by the general cotton textile finishing plants. This was done, and the process was named "Sanforizing" after Sanford Cluett, and now it has world-wide application in practically all textile countries, and as for America, "Sanforized-Shrunk" today is a veritable by-word with the textile consuming public. It is applicable to linen and spun rayon fabrics as well as all kinds of cotton cloth.

While Sanforizing's benefits to the consumer are quite obvious, it is noteworthy that the garment maker is also greatly helped. The consumer can now buy garments for style and fit from the start with assurance that they will remain so through laundering, resulting in continual comfort, better appearance and serviceability.

The cutter avoids making different oversize patterns for unpredictable and variable shrinkage in each fabric, thus saving yardage and pattern cost. With Sanforized-Shrunk materials he makes his patterns correct size and has no appreciable variation in the finished garments irrespective of fabrics used. As an instance, gone are the white duck slacks of years past, which became "high water boys" on first washing, and in their place comes the great modern array of practical and attractive slacks made possible by this process.

The modern Sanforizing Range, cut of which is shown, is a precision machine that will produce any desirable shrinkage correctly. Theoretically, Sanforized fabrics are shrunk to the individual zero point as previously shown

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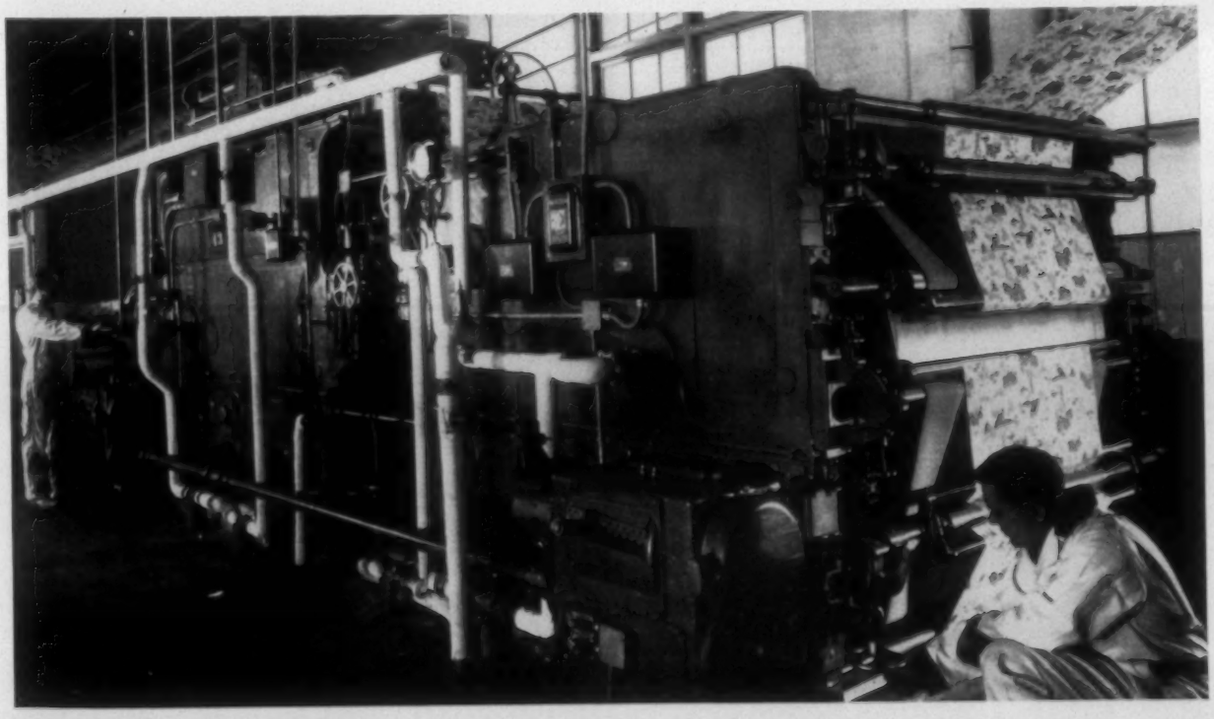


## 30 Years Ago

# There Was No Fluorescent Lighting

By D. R. Grandy

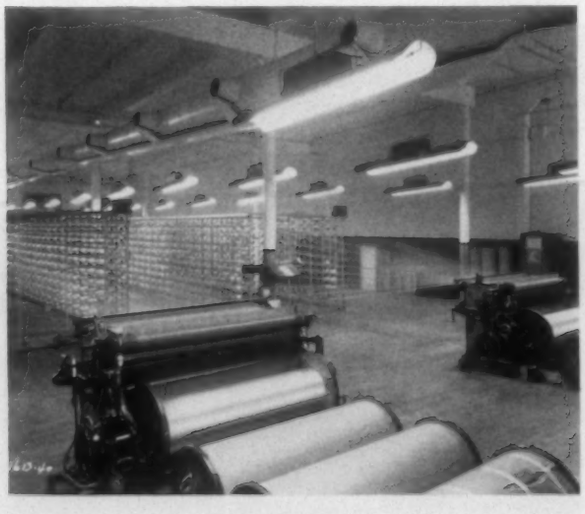
Lamp Department, General Electric Company

THE main purpose of looking back thirty years in the textile industry is to discover the progress which has been made in the various phases of this important branch of industrial lighting. As we casually think of thirty years it seems a relatively short time, yet as we look over the changes that have been made in mill construction, mill machinery and mill lighting we are astounded at the rapid strides which have been made in all of these matters, in what to us seems just a few short years.

In that period we have been through several cycles of business prosperity, we have been through a World War and are part way through another. Characteristic of American industry, however, as time has marched on quickly, so have industrial developments. In a brief review of lighting progress over the past thirty years, as it applies to the textile industry, we can only touch the high spots. There is, however, sufficient contrast in the lighting industry of thirty years ago and the lighting industry of today to warrant such a review.

Thirty years ago, almost to the year, witnessed the introduction of the drawn tungsten filament lamps, the greatest advance in electric illumination since the development of the first successful incandescent lamp by Thomas Edison in 1879. The year 1941 is witnessing a phenomenal adoption of the next major improvement in electric illumination, namely, the fluorescent lamp. While Edison invented his lamp in 1879 the first commercial lamp was placed on the market in 1881. Thus, we find the 60 years of electric lamp illumination marked by two major improvements almost exactly thirty years apart.

While the lighting of textile mills 30 years ago employed a large number of bare lamps, this picture is typical of some progress in the control of light. Note the cone shades located at various heights over the equipment and the prevalence of drop cords.



This photograph shows the application of the Cooper Hewitt version of fluorescent lighting, RF lamps, where adequate cut-off is designed in the reflector. Note the well distributed illumination and lack of shadows.

The history of artificial lighting has followed three general processes: First, the method of combustion, exemplified by fire, oil lamps, gas lamps, etc. The second general classification is termed "incandescent" and follows through the carbon lamp, the tungsten-filament lamp, and later the gas-filled lamp. A third element of artificial lighting is generally covered by the term "electric discharge." This latter group includes the carbon-arc lamps, the vapor-arc lamps and their consequent developments.

Suppose we look at the artificial lighting sources available in the year 1911 as applied to textile mills. At that time there were in general use gas lamps using the mantle for increased efficiency, a very general use of carbon lamps, and a somewhat limited use of carbon-arc lamps and Cooper Hewitt Mercury lamps. Electrical energy was not as generally available to all mills in 1911 as it is today, so that we found many of them still using flame sources in one form or another. Due to the necessity of rugged light sources, carbon lamps were still generally used among many of the textile mills. Because of its

increased efficiency, the Cooper Hewitt Mercury arc lamp in its early form was finding its way into textile mill applications.

In 1911 the drawn tungsten-filament incandescent lamp was placed on the market. This was a most radical improvement in electric lamps, due to both its efficiency and the fact that it was much more rugged than the pressed tungsten-filament and tantalum filament lamps which immediately preceded it. Carbon lamps had reached the efficiency of 4 lumens per watt. This was a 285% rating compared with Edison's first carbon lamp. In other words, the amount of light for a given current consumption was well over 2½ times the original lamp. This increase in efficiency took place in the twenty-three years following the introduction of the carbon lamp to the market. The drawn tungsten-filament lamp, which was placed

The 1941 version of modern mill illumination. Built in, high level lighting combined with air conditioning and acoustical ceilings are about the last word in textile mill operation. Reduction of mill noise, complete air conditioning control, adequate illumination entirely free of shadows have done much to bring this mill to a high degree of efficiency.

on the market in 1911, just 30 years ago, started out with a rating of 10 lumens per watt. This astounding new efficiency was 2½ times the best carbon lamp, and over 7 times as good as the original carbon lamp. At the same time, an early form of the Cooper Hewitt Mercury arc lamp was finding its way into textile mills because of an even better efficiency than the newly developed drawn tungsten-filament lamps.

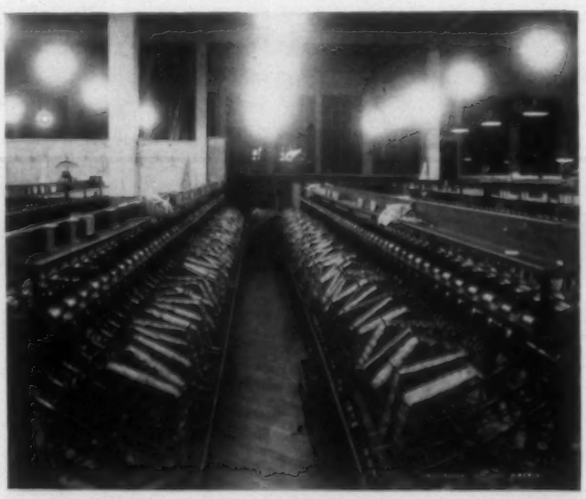
During the past thirty years the tungsten-filament lamp efficiency has grown from the original 10 lumens per watt to the present day rating of about 16 lumens per watt. In other words, the present filament lamp is over 1½ times better than its earliest form, and about ten times as efficient as the original incandescent or carbon lamp.

In the meantime, the Mercury Vapor Arc has gone through a development cycle in both form and efficiency to where it, today, is much more efficient than its earlier model, both in lumens per watt and in the mechanical and electrical operation.

Whereas the textile mills had available only a baker's dozen of light sources to use thirty years ago, the manufacturer today is making over 9,000 different kinds of lamps which can be used in one place or another in industry. Perhaps the most striking contrast between the current artificial lighting systems and that of thirty years ago, is in the price of incandescent light sources. If we take the 100-watt incandescent lamp as typical of the line, we find the following price history: In 1911 the lamp was priced at $1.35 list. This compared with an earlier price of $2.00 each for 100-watt lamp of the pressed tungsten type. The 100-watt tungsten lamp compared favorably with the 32 candlepower carbon lamp, which was the corresponding member of that group. In the short space of thirty years, the 100-watt tungsten-filament lamp has dropped in list price from $1.35 each to the present day list price of $0.15 each. In the meantime, their efficiency has been increased by over 50%—their strength and other characteristics correspondingly improved. Thus filament lamps have dropped nearly 90% in their list prices in our comparative period of just thirty years.

The year 1941 finds us at the thresold of a new era in artificial lighting, particularly with reference to textile mills. This new and radically different light source is known as the fluorescent lamp and was brought to the market just three short years ago, in a limited number of sizes and primarily as a source of colored light. Hardly had it reached the market in this form, when the research laboratories produced larger tubes available in both daylight and white colors. When these new units became available, at efficiency of 40 lumens per watt and more, another revolution in the industrial lighting field started to occur. These new light sources were showing an efficiency 2½ times the generally used gas-filled tungsten lamps, and 28 times as efficient as the original carbon lamps. Not only were these new light sources 28 times as efficient as the original carbon lamps, but they introduced to the industrial field brand new colors for artificial lamps.

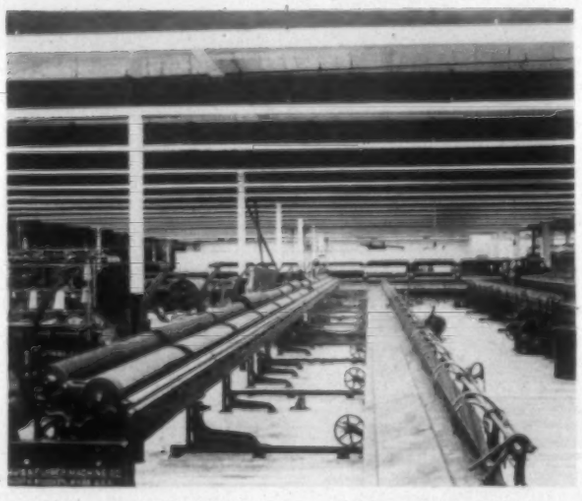
At the same time this new group of lamps radically changed the appearance of lighting systems. For the past 60 years, industrial lighting with incandescent lamps has revolved around point sources, or bulb type lamps. The advent of the fluorescent lamp had as its forerunner the



This photograph was taken some 15 years ago and indicates further progress in the control of light. Here the lamps are at least uniformly spaced and at uniform height. Bare lamps, however, still characterize this installation.

tubular form Cooper Hewitt Mercury arc. Except for that particular light source, it made a very radical change in the adaptation of artificial light to industrial interiors. The designer now had available long light sources which would do much to eliminate shadow, he had new colors which approximated daylight values, and he had new efficiencies characterized by low heat radiation with which he could begin to approach the higher level lighting which science, during these 30 years, had shown to be desirable.

Naturally, these newer lamps came onto the market at considerably higher prices than their forerunners in the incandescent field. However, in just a few short years even the prices and efficiencies of these new lamps have shown radical improvements. To take the 40-watt, 48"



Modern fluorescent lighting adapted to Mule Spinning. This photograph shows how this modern light source has been easily installed to produce a high level of quality lighting free of glare and annoying shadows. Continuous trough reflectors have figuratively "taken the roof off" this spinning room.

fluorescent lamp as an example: It came onto the market at $2.80 list price, with a 1500 hour rating. Today the same lamp lists at $1.60 with a 2500 hour rating, and a considerable improvement in efficiency.

The fluorescent line today, which started out with three sizes just a few short years ago, is now available in a wide range of sizes and colors, ranging from a 6-watt 9" lamp, to the 100-watt 60" lamp. In between are available 14-watt, 15-watt, 20-watt, 30-watt, 40-watt, and 65-watt sizes. As a companion development the Cooper Hewitt Mercury arc lamp became available in a fluorescent model, which is now known as the "RF" lamp. This lamp rated at 85 watts, has about double the efficiency of the original Cooper-Hewitt Mercury arc lamp.

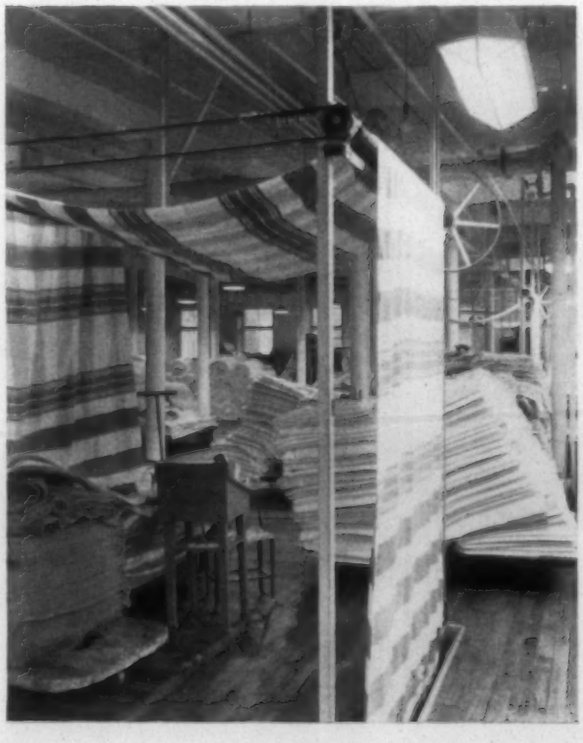
As we look over the field today, textile mill operators have their choice of a wide variety of incandescent lamps, a wide variety of the new fluorescent lamps, and for some purposes, another special development the Mazda H Mercury lamp. This latter is a bulbular development of the Mercury arc and is also rated in the neighborhood of 40 lumens per watt. Incidentally, this latter lamp has dropped from an original price of $12.50 to a current price of $11.00.

## Light Control

We have just been dealing with the 30-year history of light sources—let us now turn to the subject of "light control." Thirty years ago the general pattern of textile mill lighting might have been characterized as "a too general use" of bare light sources, hanging on drop cords. During the past thirty years we have progressed from practically no light control through the flat tin shade period, on to somewhat enclosing metal shades, up to the present practice of practically complete control of lighting. This increased control, coupled with the increase in efficiency of light sources, has made for a much more efficient use of generated light. Glare has been placed under control and eliminated as a source of annoyance to a greater extent than we sometimes appreciate during the past thirty years.

The Cooper Hewitt lamp was originally introduced as an essentially bare light source. Its low surface brightness compared with the then available tungsten lamps made this bare lamp application seem somewhat justified. Yet in the past 30 years, the control of light from this source has been greatly increased to the point that today's equipment adequately screens the light source from the normal eye position. Today's fluorescent lamps, because they were still less bright than other light sources, seemed to start out with a too great use of bare light sources. Yet in the past two or three years, greatly improved control of light has been introduced for these latest light sources, so that today's approved equipment is not only efficient in light control but also does a good job of eliminating the glare from even these lower brightness sources.

Light control equipment today comprises the use of many materials, ranging all the way from painted metal to highly efficient enameled metal surfaces, glass reflectors, mirrorred metal reflectors, and even the use of plas-



The next step in change of light quality is exemplified by this combination fixture employing four incandescent bulbs and one Cooper Hewitt low-pressure mercury lamp behind a diffuser screen. This combination gave a very close approximation of daylight values with low brightness and elimination of shadows.

tics. It would seem that there is hardly a phase of the industrial lighting business which has not been greatly improved in this short period of thirty years, which we are considering.

### Appreciation of Light

Thirty years ago it would seem fair to say that the average mill owner put lighting into his plant merely as an accessory. Someone has compared this era with the statement that artificial lighting was competing with darkness. Looking over the photographs of early installations, it is not hard to believe this statement. Fifty-watt lamps were hung from drop cords as high as 75 or 100 feet apart in many textile mills. A quarter of a watt per square foot was frequently considered a generous allowance for lighting. As we look back on this era it would seem that the artificial lighting in many mills merely served as a guide or road-map for the operators to find their way between the machines. Certainly the lighting of that period did not lend much to the operator's ability to see what was going on. Perhaps the use of slower machinery and less complicated machinery helped to make that type of lighting adequate for its day.

In looking over the literature of various manufacturers of artificial light written 25 and 30 years ago, there does not seem to be much evidence of a great appreciation of the value of light as a production tool. Most manufacturers seemed to be selling their equipment on the basis of comparative efficiency and how much current could be saved with their system over some competing system.

However, beginning shortly after the era of 1911, we begin to see evidence of the appreciation of lighting for lighting's sake, creeping into the application of artificial light. Manufacturers of lighting equipment began to put forth arguments for increased production, increased safety, increased quality and increased employee benefits. The last 25 years has seen a radical change come about in the appreciation of what light can do for the average industrial operator. No doubt a great deal of this increased appreciation of lighting for its own sake traces back to the researches of a number of able technicians who have devoted the greater part of their lives to this particular study. It is the history of such things that the scientist looks for fundamental facts in his laboratory and introduces them to business, who then begin to gingerly apply some of his suggestions. As these suggestions begin to prove out, then the adoption by industry seems to snowball, until today, 30 years from 1911, we find a greater appreciation of lighting for what it will do than has ever been true in the industrial world. We can attribute much of this to the fundamental research of the lighting laboratory, and perhaps some of it to the decreased cost of electricity, and the continually decreasing cost of lamps and lighting equipment. Perhaps, also, we can attribute much of it to the rapid development of industrial equipment, which has served to bring out higher speed machinery, lower cost production, etc.

With machines running at higher speeds today than ever before, it becomes increasingly important to see what those machines are doing and shut them down if they are turning out second rate work. A slower machine can turn out less production and correspondingly less second quality material. An operator could afford to be slow in catching up with his machine. However, today, the factory cannot afford to let such things get away from them and since over 80% of our impressions come through our eyes it has become doubly important to see what is going on. Our scientists have shown us that the fact of seeing is a combination of the quantity and quality of light and the factor of time. With machines running faster, time is less available and, therefore, we must use more light in order to catch up with the process.

While the ulterior motive of more production may have been the spring-board from which some of this scientific study started and some of the industrial experimentations started, today we have even broadened that field to where not only production and quality, but employee welfare, safety, etc., are equally important factors in the application of artificial light.

Here are some of the facts which research has developed during the past thirty years, and made available to us to guide our application of industrial lighting.

The pupil of the eye becomes smaller with age; consequently, there is need for more light as birthdays pile up.

A man who uses his eyes under poor lighting conditions or for long periods often develops tenseness and other unobvious evidences of eye strain.

Light acts as a magnifier of small details. An object must be about twice as large to be visible under one footcandle of light, as it would have to be under 100 footcandles of light. Yet, 100 footcandles is only approximately one per cent of maximum daylight out of doors.

The eyes readily adjust themselves to a variety of conditions and are slow to complain of their need for glasses and better lighting. Because of this great adaptability of our eyes, people are frequently prone to discount the benefits of increased lighting levels. While the harm may not be immediately obvious, scientific studies have proved that in the end there is a loss to forcing ourselves to operate under poor lighting.

Good lighting generally aids defective eyes, even more than it helps normal eyes.

Sewing is generally much harder on the eyes than reading. Therefore much more light is needed.

Science has discovered and proven that there is a great range in the visibility of different operations. In order to offset this difference in visibility the manufacturer may compensate for it by increased illumination. In order to make comparable tasks as easy for our eyes we should, when reading 8 point type well printed on white paper, use a minimum of 10 footcandles. In order to make the sewing with black thread on dark cloth equally visible and an equally easy task, we should use 500 footcandles. Applying this to a textile mill it is much easier to see the operations on white cloth than it is on colored cloth. Yet how infrequently do we compensate for the increased visual tasks handed to our operators by giving them increased illumination.

If we use the blinking of our eyes as a measure of the adequacy of our lighting system, research has disclosed that if we use the blinking rate under 1 footcandle as 100%, that we reduce the blinking by 35% if we use 100 footcandles. Long study in the laboratories indicates that this blink rate is one good indicator of the adequacy of our lighting system.

The above are only flashes from the years of study in research laboratories indicating the value of better lighting to our human welfare and to our industrial operations.

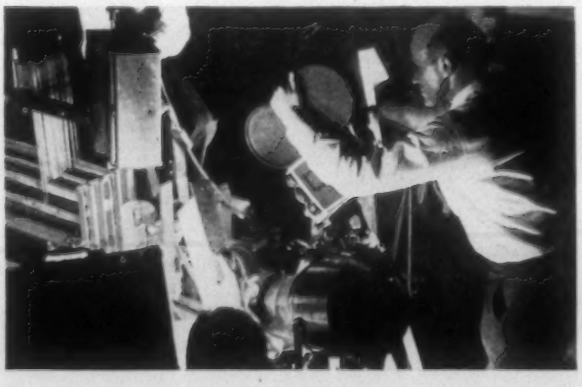
(*Continued on Page 133*)

# Thirty Years of Progress in Loom Manufacturing

IN considering the developments in looms over the past thirty years, probably the best treatment could be obtained by making a comparison with the automobile, which is familiar to everyone. The automobile of today is essentially the same as it was in 1911. It has four wheels, a gasoline motor, rubber tires, steers from the front wheels through the use of a front seat steering wheel, has a glass windshield, uses oil in the crankcase, has a transmission, gear shift, at least three forward speeds, headlights, tail-lights, a horn, etc.

Basically, the automobile of today is the same machine that was in operation thirty years ago. Yet, when the thirty-year-old automobile is placed beside the 1941 car for comparison, one wonders how the 1911 car could have been considered the last word in mechanical perfection. All of the basic features are still here, but through refinements and additions of subsequent discoveries and inventions, the 1941 automobile is too far out in front for comparison. They are precision built, of heavier and improved parts, equipped with anti-friction bearings, luxury attachments that add to its comfort and efficiency.

The loom of today also is fundamentally the same as it was thirty years ago. There is still the warp beam, the whip roll, harness, reed, shuttle, and shuttle boxes, pickers, cloth roll, cams, etc. Yet the 1941 loom is as far out in front of the 1911 loom as the 1941 automobile is the



Researchers photographing loom in operation with high speed camera. Later this film can be projected in slow motion to study the action of the parts while the loom is in motion.

1911 model. Advantages have come through improvement in design, additions of automatic features, precision building, etc.

One loom manufacturer, in a statement issued recently, listed some of the advantages of the new loom as follows:

"The new looms are heavier than the old looms. They weigh approximately 20 per cent. As in the case of the old machines they are made primarily of cast iron and steel. However, the amount of steel in them is nearly two and one-half times the amount of steel in the old looms. The amount of cast iron, on the other hand, is slightly over 9 per cent less than the amount of cast iron in the old machines, and constitutes approximately 65 per cent of the material in a loom.

"The increased importance of steel, as compared with

Looms in Weaving Department at N. C. State College Textile School.

cast iron, can be expressed in another way. In the modern machines, the ratio by weight of steel to cast iron is about 0.55, whereas in the machines of the old design, the same ratio is about 0.22.

"A detailed analysis of the component parts of comparative sections of the old and new machines shows an average of 7.36 machining operations per piece in the new machines as compared with 5.24 machining operations per piece in the old machines. In other words, in terms of machining operations, there is 40 per cent more machine work done in new equipment than there is in that of older design. A large part of this work is grinding and reaming. There are about three times as many grinding operations and four times as many reaming operations in the new as compared with the old design.

"A condition fundamental to the reduction of wear in machine parts is the provision of an accurately made and rigid basic structure. In the new loomsides machined pads are provided for all parts that are attached to them and the bearings are supported in machined seats. The old loomsides are rough castings to which the bearing boxes are fitted by hand. The motor supporting frame in the new design is carried entirely by the loomside and is not dependent upon a support to the floor. This arrangement

(*Continued on Page 157*)

# Personnel Program Becoming Increasingly Important To Mills

By J. O. Thomas*

THIRTY YEARS of progress in industrial relations or personnel work in the textile industry of the South can be covered only in a very general way in this rather brief article. The story of the development and progress in this very important field, if adequately told, would require considerable time and research and would fill more space than is ordinarily given to a magazine article of this kind.

As great as may have been the growth of the industrial relations program in the Southern textile field during the past thirty years, the next five or ten years will probably bring more real expansion and progress than have the last three decades. The present period of rapid expansion in the industrial field, the general world situation and the American defense program, the new concept of social responsibility and governmental pressures are forcing many industrial leaders to realize the importance of specialized departments to handle in an organized manner the highly important activity of personnel administration. The function of industrial relations is today taking its place along with production, finance, engineering, marketing and other essential departments of an industrial enterprise.

J. O. Thomas

When one begins to trace in a general way the growth of the human relations program over a period of thirty years, one fact stands out rather prominently. In the textile industry of the South during most of this period there has been little done that might be classed as real personnel work. Most of the work done in this field will have to be placed upon the heading of "welfare work." Perhaps out of this welfare program have come many of the benefits that might result from the planning and carrying out of a well developed personnel program, but these desirable, constructive results have come more or less by accident or as by-products and not as the direct result of a well-planned, definite and objective personnel program.

During a recent discussion of personnel problems at a national convention of the American Management Association, personnel section, someone asked how industry was going to keep personnel departments from becoming welfare departments. Someone answered by asking, "How are we going to change our present welfare departments into personnel departments?" This is one very real job facing the Southern textile industry today if it is to make proper progress in the future.

One should not, however, speak too disparagingly of the welfare departments that have been a very integral part of the growth and development of the textile industry in the South. Considering the history and background of the industry and the problems it has faced through these years of growth and expansion, welfare work has contributed a great deal of value. In most cases the motives back of this program were sincere and worthy, even if some of its activities did smack of paternalism. Some of the better organized welfare activities made for a happier and more wholesome community life in villages that otherwise would have been drab and unattractive.

A few of the larger textile companies of the South and some of the smaller ones deserve a great deal of credit for the constructive and progressive programs they have carried on over a period of years. One can name dozens of them throughout the South. Many of these progressive firms are realizing today, however, that while their activities served many useful purposes in another day that now they must be brought up to date and modernized by making them over into organized personnel departments that will deal with the various aspects of human relationships in a way that will be fundamentally sound and constructive.

### Housing Facilities

Thirty years ago progressive textile concerns in most Southern mill villages were finding it necessary to provide housing facilities for their employees. In those days there were no FHA or other agencies to take over this necessary part of industrial life in most of the mill communities. It was the duty of mill owners to provide employee housing at a reasonable cost to employees, otherwise workers would have been inadequately housed or exploited by outside groups that had no direct interest in the welfare of the employees. Mill owned villages have seemed during

*Personal Director, Marshall Field & Co., manufacturing division, Spray, N. C.; Vice-President of the Southern Textile Association.

the past, in most cases, to be a necessary and desirable part of the industrial set-up. Today the picture is changing and in many cases villages or parts of villages are being sold to employees or to other individuals or groups. There is a very decided trend today toward getting away from this activity which in the past was considered a responsibility of mill ownership and management.

It is also true that, in many cases, mill owners have felt the responsibility for building and maintaining streets in their mill villages and have also felt it desirable to build parks and to take a very active interest in yard improvement and beautification. These are some of the things that have come along with the mill ownership of villages. In some cases there has also been the responsibility of furnishing water and lights to employees.

In the early days of the industry, and up until fairly recent years, mills in many communities have felt it their duty to provide schools and other educational facilities for employees and their families. Today this work is largely taken care of by governmental agencies, but one still finds industry doing its full share in seeing that these programs are adequate and that they meet the needs of a community. Supplementary aid is often furnished in addition to taxes paid by mills for school purposes. Whatever progress has been made in the field of education and training in the South during the last thirty years, especially in textile communities, has been due in large part to the co-operation and help of the textile industry.

In the field of vocational education the textile industry has co-operated with other agencies to make an outstanding contribution to the development of the South. Evening school classes and vocational schools in mill villages have contributed much in making the lives of many people fuller and more capable. Many a successful employee or operating executive owes his advancement to the training he received in classes of this kind.

### Churches Play Important Part

Churches, too, have played a big part in the growth of mill communities in the South. In building houses for employees, mill owners, in many cases, have felt it their responsibility and privilege to build or assist in building churches to be used by their employees. And even after churches were built and paid for mill management, in a great many instances, has continued to make substantial contributions in money and otherwise to the current expenses of the church program. This practice prevails in many textile communities today and the financial help of the mills is deeply appreciated by churches receiving the support. Perhaps this practice, too, is on its way out, but be that as it may, the contribution of the industry to this worthy activity of community life has been a real help in building up the spiritual and social life of many communities.

If one looks at most mill communities, it will be observed that other phases of community life have not been neglected by the mills. In practically every mill community there have been Y. M. C. A. organizations, community centers, clubs and other similar activities to take care of the community life. In some of the more progressive mill communities these activities have been outstanding and have rendered a real service to the community in which they are located. In most mill communities one will find many forms of athletics, bands, and orchestras, boy and girl scout troops and other similar activities, all being assisted in most cases by the mills.

### Health and Sanitation

One very important part of welfare work during the last thirty years has been that of promoting health and sanitation. Many mill communities have community nurses, promote health clinics of various kinds and otherwise assist employees in keeping themselves in good health. In more recent years group insurance and hospitalization plans have come into being in many places and these activities have contributed a great deal to the employee's health.

Only a few of the welfare, or industrial relations projects, have been mentioned, but one can get an idea of the magnitude of this work and the important part it has played in the Southern textile industrial field over a period of years. As has already been mentioned, these activities have contributed a great deal to the splendid development of Southern textile communities and to the industry itself. Mill management, in addition to putting on programs in its own community or communities, has co-operated in a great many cases with Southern industry as a whole to promote constructive and sound human relations programs. While the South has probably not kept pace in this field with other sections of the country, it has certainly made wonderful progress up to this time.

This brings us to a brief look into the future. Are we not standing on the threshold of a new day in industrial relations? Today, as never before, there seems to be a new interest in setting up organized personnel departments to take the place of other activities that seem to be outmoded. Many mill managers are realizing the need of specialized management for personnel. They have come to the conclusion that personnel activities need the same kind of specialized attention that is given to other important phases of business administration.

In the future more attention will have to be given to the long range planning of personnel programs. Industry must plan its personnel program in a sound manner for the years ahead. Such planning will require thought and attention by someone specializing in this field of work. This man should be given an important place in the management set-up and should be a staff adviser to top management. Any firm that fails to recognize this very decided trend and does not give attention to its personnel program will certainly be handicapped in its future program.

A real personnel program differs from the old welfare activities in that it approaches the human relations problem from a different angle. The welfare program, in most cases, merely helps people to have some of the things they want or need. The modern personnel program tries to avoid anything that seems paternalistic and strives to establish its program on a more fundamental and constructive basis.

In establishing a personnel department or program some of the things that will get more attention in the future are the selection and placement of personnel based on job analysis, specification and standardization. Employee tests are playing an increasingly important part in the employment and placement procedure. In other

*(Continued on Page 136)*

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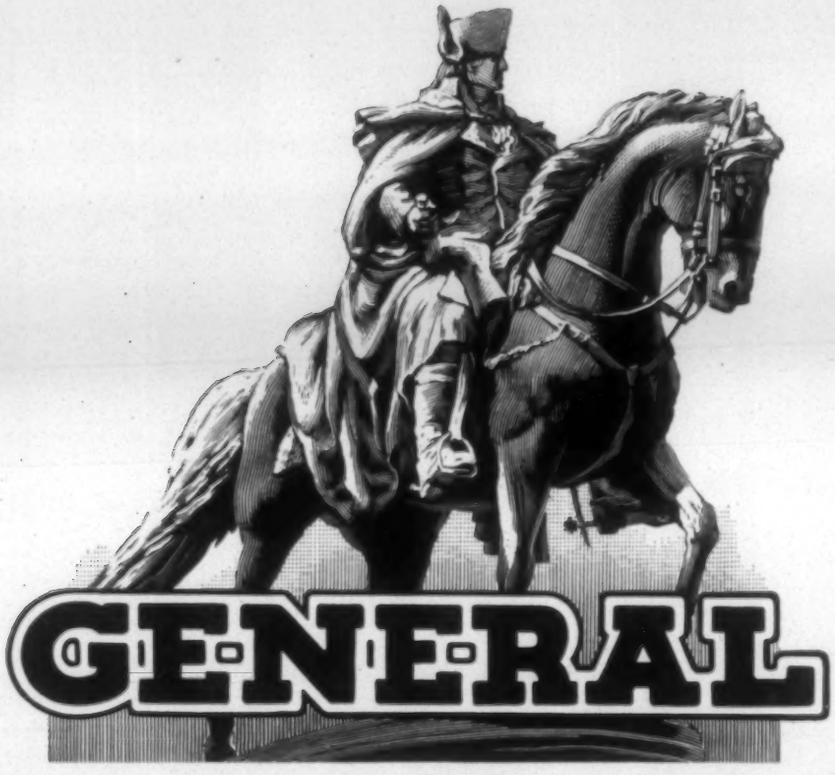


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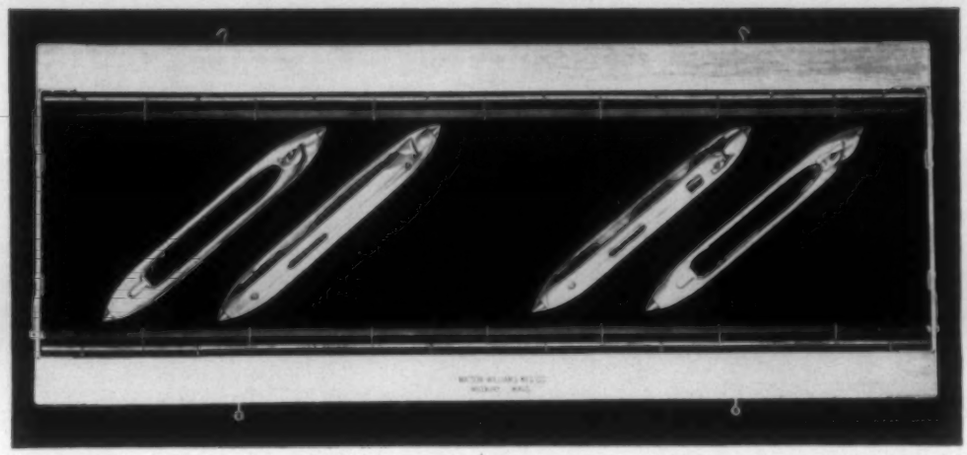
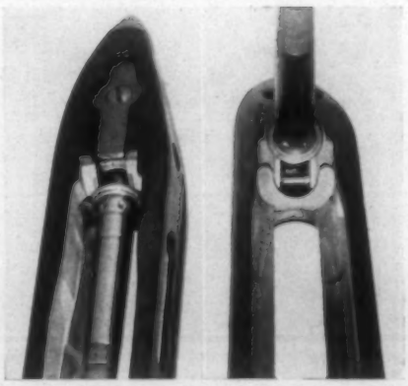


# The Shuttle People Welcome You to Booths 125 & 126



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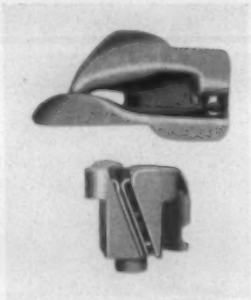

Examine Watson - Williams Improved Rear Tension Eye and Rear Slant Tension Eye.

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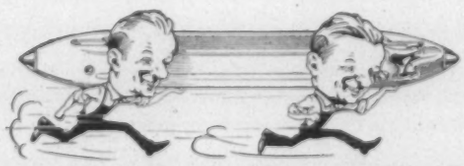

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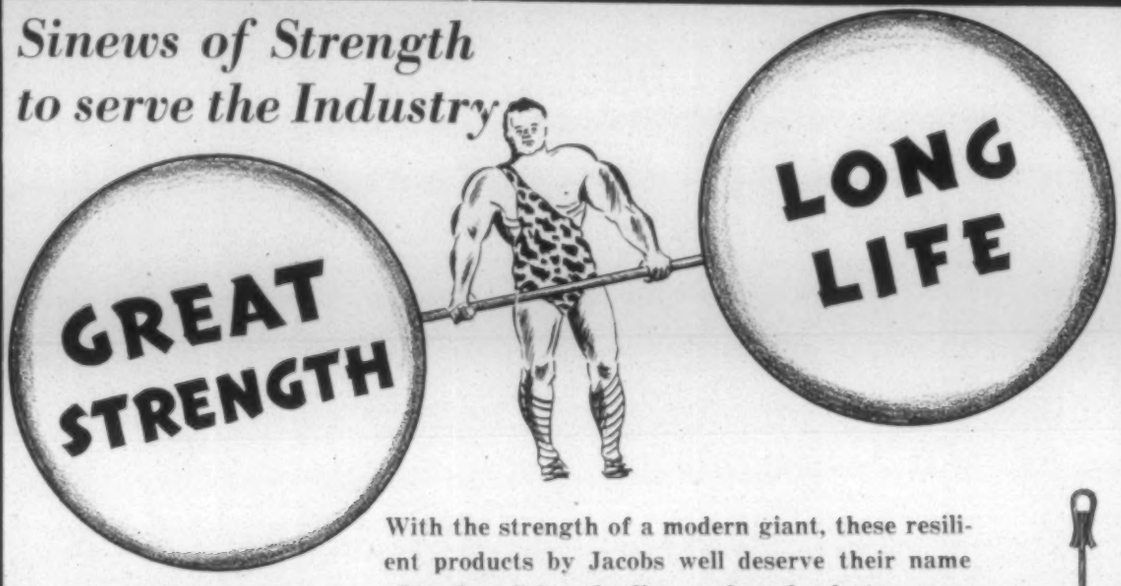


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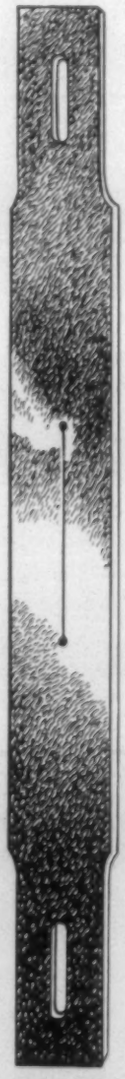

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# Personal News

T. F. Harding has resigned as overseer of spinning and winding at the Eastern Mfg. Co., Selma, N. C.

J. C. Swan has accepted a position as overseer of spinning and winding at the Eastern Mfg. Co., Selma, N. C.

B. P. Robinson is now secretary at the newly-organized Deep River Mfg. Co., Randleman, N. C.

D. H. Cauble has accepted the position of superintendent of the Glen Raven Cotton Mills No. 2, Kinston, N. C.

Hubert Stubbs is now athletic director for the Bibb City, Ga., plants of the Bibb Mfg. Co.

Robert M. Pulley, N. C. State Textile graduate of 1939, is now night overseer of carding at the China Grove (N. C.) Cotton Mill.

J. L. Adams has resigned as superintendent of the Whitney (S. C.) Mfg. Co., to become plant superintendent of the Beaumont Mfg. Co., Spartanburg, S. C.

J. M. Snoddy has been promoted to overseer spinning, in addition to his duties as overseer carding, Marion Mfg. Co., Marion, N. C.

J. C. Hooks has been transferred from Piedmont Mills, Gastonia, N. C., to superintendent Armstrong Mills, same place.

J. A. Chasteen, formerly second hand weaving, Marion Mfg. Co., Marion, N. C., is now overseer weaving, Monroe Cotton Mills, Monroe, Ga.

H. W. Kiser has become associated with the Burlington Mills Co., at Gastonia, N. C. He was formerly superintendent of the Watts Mill at Laurens, S. C.

Harry H. Purvis, for many years superintendent of the Chicopee Mfg. Co., Chicopee, Ga., has returned from an extended trip to Sao Paulo, Brazil, where he supervised the installation of the company's machinery at a plant there.

Glen Fields, who has been athletic director for the Bibb City plants of the Bibb Mfg. Co., has accepted a job with the F. B. I., Washington, D. C.

L. J. Tuttle, of High Point, N. C., has accepted the position of office manager at the Lexington (N. C.) Silk Mills.

Brown Mahon, secretary of the Dunean Mills, Greenville, S. C., has been named as chairman of the industrial committee of the Greenville County Red Cross Roll Call.

J. P. Bagwell, cloth room overseer at Monaghan plant of the Victor-Monaghan Co., Greenville, S. C., has retired.

J. T. Chalmers has resigned as overseer of weaving at Inman Mills, Inman, S. C., to become overseer of weaving at Orr Cotton Mills, Anderson, S. C.

J. Marshall Browning has resigned as office manager for the Lexington Silk Mills, Lexington, N. C., to engage in architecture.

L. E. Bagwell, Jr., formerly with Avondale Mills, Birmingham, Ala., is now overseer of weaving at the Beaumont Mfg. Co., Spartanburg, S. C.

C. W. Wilbanks, formerly superintendent of the Gayle plant of Springs Cotton Mills, Chester, S. C., is now superintendent of Grendel and Panola Mills, Greenwood, S. C.

J. T. Fry has been transferred to the position of assistant superintendent and overseer of weaving at the Graniteville and Hickman plants of the Graniteville (S. C.) Co. He was formerly with the company at Augusta, Ga.

Miss Carrie Ward, who has been assistant overseer of the cloth room at the Monaghan plant of the Victor-Monaghan Co., Greenville, S. C., has been promoted to the position of overseer, succeeding J. P. Bagwell, retired.

Arthur Crosley has resigned as general superintendent of John Watts Sons, Inc., of Roxboro, N. C., to accept a position with an Eastern concern.

L. M. Calhoun, Clemson textile graduate of 1937, has accepted a position with Owens-Corning Fiberglass Corp., Newark, N. J. He was formerly with Drayton Mills, Spartanburg, S. C.

Harry T. Allen, assistant general superintendent of the Bibb Mfg. Co., Macon, Ga., has resigned to take a position with the Riverside & Dan River Cotton Mills, Danville, Va.

Walter S. Montgomery, textile executive of Spartanburg, S. C., has recently been re-elected a member of the board of directors of Spartanburg County Fair Association.

G. M. Taylor, Clemson graduate of 1936, has been promoted from second hand in spinning at Gossett Mill, Anderson, S. C., to overseer of spinning at the plant of the same company at Williamston, S. C.

M. H. Jackson has been promoted from overseer carding and spinning, Dunn plant, of Armstrong Mills, Gastonia, N. C., to superintendent Piedmont Mills, Gastonia, N. C., of the same company.

David A. Purcell has recently been promoted from assistant superintendent to superintendent of the Draper Plant of Marshall Field & Co., Draper, N. C. He is a graduate of N. C. State College Textile School.

Blackie Carter, Furman graduate who has been prominent in athletic activities of Southern textile mills, has joined the sales staff of the W. D. Dodenhoff Co., of Greenville, S. C. Mr. Carter will have headquarters in Greenville, and will travel South Carolina.

Lee Sens has resigned as superintendent of the Glen Raven Cotton Mills No. 2, Kinston, N. C., to accept a position as senior cotton processing technician at the Department of Agriculture Regional Research Laboratory at New Orleans, La.

Clarence R. Duncan has resigned as assistant superintendent of the Melville Mills, Inc., and the Glenn Mfg. Co., Lincolnton, N. C., to become Southern representative for the Victor Ring Traveler Co., of Providence, R. I. His headquarters will be in Lincolnton.

## Late Addition to Exhibitors at Textile Show

Announced too late for our regular listing in the first section of the book, the Batson Manufacturing Company, of Greenville, S. C., will exhibit in Booth Number 328-A at the Southern Textile Exposition.

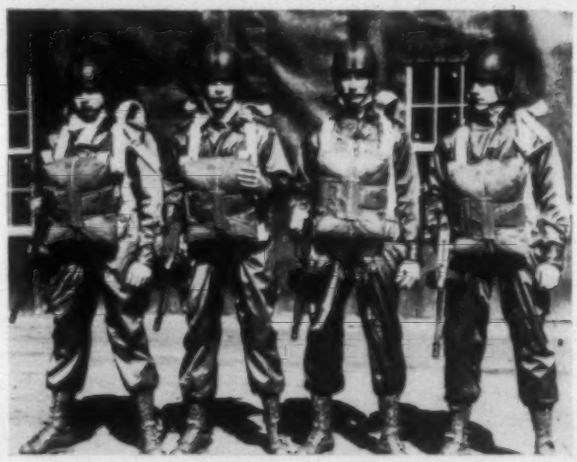
## Chatham Mill Workers to be Fingerprinted

Elkin, N. C.—All employees of the Chatham Manufacturing Company here are to be fingerprinted soon in a precautionary move in connection with national defense.

More than 2,100 men and women from President Thurmond Chatham down to the lowest paid employee will undergo the routine. The firm has blanket and woolen material contracts for the military forces.

## Men from Mars?

In spite of the "Men From Mars" appearance of the men in the illustration below, they are United States Army boys in the 501st Parachute Battalion now in training at Fort Benning, Georgia. As an alibi for including this interesting photo in a textile journal, we call your attention to the fact that they are wearing



rayon and cotton uniforms which have recently been adopted by the U. S. Army, made of Crown Tested rayon. These "Jump-Suits" are made in one piece from Skinner's "tackle twill," a tough, long-wearing fabric which affords landing parachutists added protection. The shiny outer surface also reduces the hazard of fouling of the parachute shroud lines.

# OBITUARY

### BUFORD HEGGOOD

Lanett, Ala.—Buford Heggood, 51, assistant overseer of carding at the Lanett plant of the West Point Mfg. Co., died recently. He had been employed at the mill for 41 years.

### T. M. GARDNER

Savannah, Ga.—Thomas Morgan Gardner, secretary of the Southern Brighton Mills, and nationally known in textile circles, died in Atlanta, February 28th.

Gardner, for many years active in affairs of St. Peters Episcopal Church, Rome, had been in poor health for the past three years.

### W. E. MAYS, SR.

Easley, S. C.—William Earle Mays, 72, secretary of the Glenwood Cotton Mills, died March 8th at his home. He had been in declining health for the past year.

Mr. Mays also served as secretary of the Pickens Mill, at Pickens, S. C. He had been connected with the Glenwood Mill since 1902.

# TEXTILE BULLETIN

Member of
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**CLARK PUBLISHING COMPANY**

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Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.


## Combination Number

This is a Combination Number of the TEXTILE BULLETIN, one section being devoted to our Thirtieth Anniversary and reviews of progress in textile manufacturing during the past thirty years, and the other to the coming Southern Textile Exposition at Greenville, S. C.

The articles dealing with progress, during the period of our existence, are exceptionally good and are well worth reading, as very few men have realized the number of changes which have been made in processes and how many new machines have been invented and developed.

In the Southern Textile Exposition Section we have, as has been our custom, given descriptions of the machinery and equipment to be displayed in the exhibition booths and thereby made it possible for prospective visitors to make note of those things which it is most important for them to see.

In one section of the Combination Number, we describe the developments of the past thirty years and in another we call attention to current developments, which will be exhibited at Greenville.

On this page we are, also, taking the liberty of describing the incidents, which led to the launching of the TEXTILE BULLETIN, and of offering thanks to those who gave us such timely and valuable assistance.

## Thirty Years

Thirty years is really a long time, but only the date line of our first issue, March 2, 1911, makes us realize that it was so long ago.

In June, 1908, we became editor of a textile journal which was then published in Charlotte and entered into a contract through which we were to pay, each month, half of a very meager salary for the purchase of stock in the publishing company and were eventually to become half owner.

Although the publication began to prosper, disagreements arose and, in December, 1910, we found it advisable to sever our connection and to accept a small cash settlement for the interest which had been acquired.

It has been often said that small incidents can completely change the course of a man's life and it was certainly so in our case, because on the late afternoon of Christmas Eve, we were standing on the sidewalk curb near the ground floor door of the Independence Trust Co. Building, paying no attention to the snow which was falling but trying to make an important decision.

In one pocket was all the wealth we possessed, which was a few hundred dollars salvaged from our former connection, and in another was a telegram offering us a lucrative position in engineering work in Brazil. The offer had come through Cornell University, from which we had, a few years earlier, graduated with an M.E. degree.

We could see nothing to do but accept the offer but we did not wish to leave North Carolina, or the textile industry or textile journalism and were trying to reach a definite decision.

As we stood and pondered, an elevator descended and Fred H. White, then Southern agent for the Stafford Co., emerged from the door and seeing us, asked what we were going to do.

Upon being told of the Brazil offer, Mr. White said, "Why do you not start a journal of your own? If you do I will guarantee you the advertising of the Stafford Co."

From the Independence Building, we wandered to the Southern Manufacturers' Club and found there John L. Dabbs, who was at that time Southern representative of A. Klipstein & Co., and he also said, "Why don't you start a journal of your own? I will see that you get the advertising of my company."

We were much encouraged, but there was still the problem of lack of capital. On the day after Christmas, purely by accident, we met upon the street the representative of the Antietan Paper Co. of Baltimore, Md., with whom we had done business while with the other journal, and the representative, being told of the above suggestion, offered a line of credit of considerable size.

# THE MOST IMPORTANT OPPORTUNITY AT THE GREENVILLE SHOW

The chance to see new developments in machinery, accessories, and supplies on this biennial occasion should not be neglected by any mill man; neither should the opportunity to investigate older products which he may never have used. But over and above these is another opportunity which offers greater benefits to buyer and seller alike.

The Greenville Show permits manufacturers and mill men to meet in a relaxed mood, to get to know each other as individuals, and to rediscover the fact that only by a policy of live and let live can the industry as a whole prosper.

That, briefly, is the way we feel about it, and we hope you'll give us a chance to prove it by paying us a visit at BOOTH 120.

## ASHWORTH

PIONEERS IN CARD CLOTHING . . . *ASHWORTH BROS., INC.*

Woolen Div. AMERICAN CARD CLOTHING CO.

**3** FACTORIES
FALL RIVER
WORCESTER
PHILADELPHIA

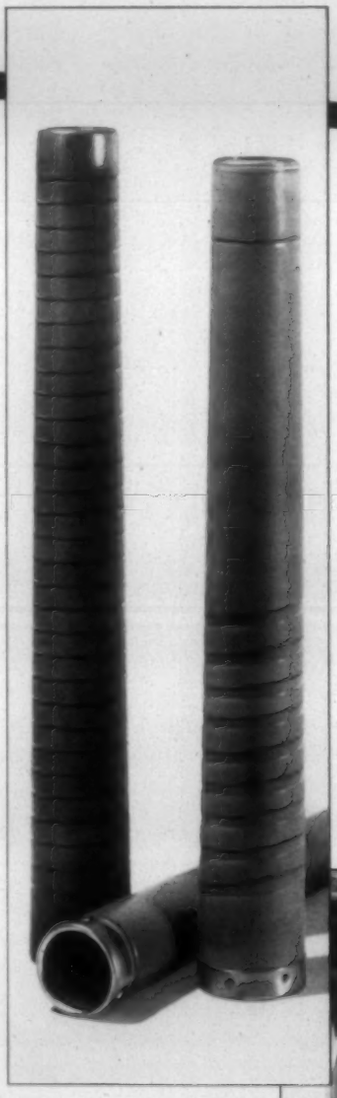
**6** REPAIR SHOPS
FALL RIVER, PHILADELPHIA
CHARLOTTE, GREENVILLE,
ATLANTA, DALLAS

**7** DISTRIBUTING POINTS
FALL RIVER, WORCESTER
PHILADELPHIA, CHARLOTTE,
GREENVILLE, ATLANTA, DALLAS

SOUTHWESTERN REPRESENTATIVE: • TEXTILE SUPPLY CO., DALLAS, TEXAS

PRODUCTS AND SERVICES: Card Clothing for Cotton, Wool, Worsted, Silk and Asbestos Cards and for all Types of Napping Machinery • Brusher Clothing and Card Clothing for Special Purposes • Lickerin Wire and Garnet Wire • Sole Distributors for Platt's Metallic Wire • Lickerins and Top Flats Reclothed

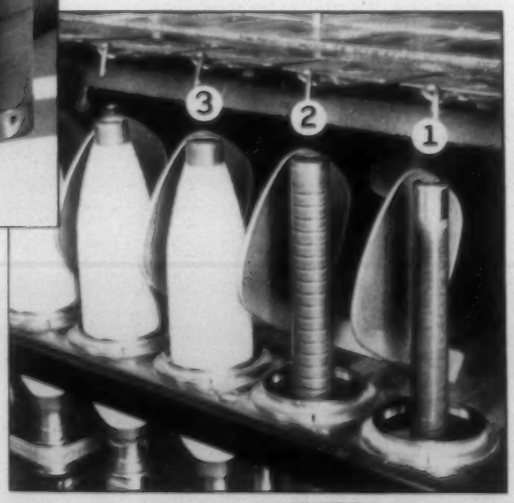
# SEE FOR YOURSELF AT THE GREENVILLE SHOW THAT A·P·T· TUBES IMPROVE QUALITY AND REDUCE UPKEEP



## P. S. THEY'LL BE RUNNING ON SACO-LOWELL BETTER DRAFT, HIGH SPEED FRAMES, BOOTH 225, SECTIONS, C, D, E

1. Note that perfect balance (we build the tube around the hole) and spindle tip suspension help to eliminate spindle wear and spindle vibration with resultant wear on bearings.
2. That they are highly resistant to splitting, splintering, chipping, and distortion (even in high, humid temperatures).
3. That they combine light weight with strength and resiliency.
4. That their smooth, hard surface and well rounded corrugations permit free but controlled delivery.
5. That they reduce ultimate as well as first cost.

A. P. T. tubes were developed for and with modern high speed cotton spinning. Specify them for YOUR modernization program.




1. Empty sleeve spindle.
2. A. P. T. your carrier on spindle.
3. Full tube of yarn.

THE FINEST TAPERED TEXTILE TUBES QUILLS & BOBBINS

**AMERICAN PAPER TUBE COMPANY**

INCL. SHAMBOW SHUTTLE DIV. WOONSOCKET, RHODE ISLAND

Southern Agent: M. Bradford Hodges, Box 752, Atlanta, Ga.
North Atlantic Rep.: Earl D. Melot, 322 North 15th St., Allentown, Pa.

On January 10th, 1911, we published a specimen edition of the proposed Southern Textile Bulletin and left for New England to see prospective advertisers.

With the advertising contracts we secured and the line of credit extended by the Antietam Paper Co., the first issue was published on March 2nd, 1911, and we have now reached our "Thirtieth Anniversary."

The editor of this publication often wonders, where he would be today and what he would be doing, if Fred H. White had not worked late on Christmas Eve, 1910, or if John Dabbs had not decided to visit the Southern Manufacturers' Club before going home.

We are not unmindful of the fact that that was only the beginning and that our ability to stay in business has been due to the encouragement and the very fine support which has been given us by the men in the textile industry of the South and in the machinery and mill equipment business in the North.

Many of those who gave us the greatest support, when support meant much to us, have long since passed over the hill, but we still cherish memories of the things they did for us.

From the beginning we had the idea that a textile journal could not justify its existence unless it rendered service to the industry, and throughout the thirty years we have attempted to render service.

We have fought many battles for the industry and in some cases, such as the fight against Federal legislation on child labor, personally handled the fight.

We have never believed in child labor and in one of our early issues will be found an editorial advocating a 14-year minimum age for North Carolina, but we were opposed and still are opposed to allowing the Federal government to take over functions which, under the Constitution, had been reserved to the sovereign States.

We saw the need of education for the men in the mills and organized the Southern Textile Association, which has been a great force in the development of our industry, and has been a great aid to ambitious young men who wished to acquire knowledge as a means of advancement.

We are conservative when we say that we believe that information developed in its Division Meetings have meant more than a million dollars to Southern mills.

We hope to be able to serve the textile industry of the South for still more years, but, as we look back upon the thirty years which have passed, we have a deep sense of obligation to those whose support has made our existence possible.

## Southern Textile Exposition

When the devil was sick, the devil a monk would be.
When the devil was well, a devil was he.

We may not have the words of the old rhyme exactly correct but the meaning is there.

When the textile industry was sick its members, from president to section man and loom fixer and even the operators of machines, flocked to each Southern Textile Exposition for the purpose of obtaining information about machinery and equipment which would reduce the costs of production and improve the quality of goods or yarns.

The textile industry is now prosperous and it may be that some have lost their interest in reducing costs or improving quality and may be inclined to stay at home during the coming Southern Textile Exposition.

There may also be some mill presidents and treasurers who, because they have goods to produce, may discourage or even forbid their superintendents, overseers and men in lower positions to take enough time off to attend the Exposition.

We hope that none of the above mentioned situations will develop because there never was a time when it was as important to modernize to the last degree, and the Southern Textile Exposition will display the latest improvements.

Read again the last line of the rhyme and take heed.

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## Seamless Wage Survey

When President Roosevelt was advocating a wage and hour law, he repeatedly asserted that the only purpose was to put "a floor under wages and a ceiling over hours."

Those statements attracted the support of many who knew that, in every industry, there were some who paid exceptionally low wages and worked their employees for exceptionally long hours. They gave support to the measure for the sole purpose of forcing a few manufacturers, who had been taking unfair advantage of their employees, to pay reasonable wages and to refrain from requiring their employees to work excessively long hours.

A floor has been put under wages and a ceiling has been put over hours or, in other words, the purpose which was definitely announced as the sole purpose of the act, has been accomplished but, within a period of a few months, we find agitation for doing more than was stated and for using political power to fix a new scale of wages.

# Mill News

GLASGOW, VA.—The Blueridge Co., Inc., will use its new one-story addition for a warehouse. The equipment and construction will cost about $80,000.

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ATHENS, GA.—The Athens Cotton Mills will add a one-story addition to be used for warehouse purposes. The addition and equipment will represent a cost of more than $125,000.

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ROCKY MOUNT, N. C.—Caromount Mills, Inc., is adding an addition to be used for a dyeing and finishing department, at an estimated cost of more than $400,000, with equipment.

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DRAPER, N. C.—Work is going forward rapidly here on the construction of a dye plant for Marshall Field & Co. The building will measure 50 feet by 100 feet, and will represent a cost of approximately $58,000.

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WINSTON-SALEM, N. C.—Two new buildings are to be erected here by Hanes Dye & Finishing Co. An addition to the present plant is to be built, 70x30 feet, of metal on wood construction, this to cost about $3,500. The second building will be of metal on a concrete foundation, 60x160 feet, and will be an entirely separate structure. This building will cost about $11,000.

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DALLAS, N. C.—It became known here that Jerry Walker, Gastonia business man and head of the Walker Engineering Company, has purchased the entire property of the original Monarch Mill at Dallas. The property consists of the large mill building, several warehouses and smaller buildings.

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LYMAN, S. C.—Fifty-six new Whitin model F-2 filling spinning frames have been purchased by the Pacific Mills for the Lyman unit.

These frames are of 252 spindles each, three-inch gauge, 1 7/16-inch ring with 7-inch traverse . They are equipped with steel ring rails, ball bearing clutch-type spindles. Fafnir ball bearings for cylinder arbors, and ball bearing tape tension pulleys. They are provided with the Whitin long draft system.

These new frames will replace old band-drive machines which were equipped with an early type of long draft arrangement.

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GREENVILLE, S. C.—Expansion of the power plants of Union Bleachery and Renfrew Bleachery near Travelers Rest, is now under way, it is learned from J. E. Sirrine & Company, engineers.

Four contracts have been awarded for the expansion program at Union Bleachery. The orders were for one 500 horsepower boiler to Babcock & Wilcox Company, Atlanta; multiple retort stoker to American Engineering Company, Philadelphia; boiler bricksetting to Fisher-Halliday Company, Atlanta, and two smoke stacks with built-in induced draft fans to Prat-Daniel Company, East Port Chester, Conn. One of the stacks is for an existing 500 horsepower boiler.

The power plant extension is part of the continuing modernization program developed for Union Bleachery by the engineers.

The Sirrine Company awarded contracts for Brandon Corporation for the power plant extension at Renfrew Bleachery. Orders were for a 400 horsepower boiler, stoker and bricksetting to Combustion Engineering company, New York; automatic coal-handling equipment to Link-Belt Company, Atlanta; concrete stove silo to Neff & Fry Company, Camden, O., and automatic coal scale to Richardson Scale Company, Atlanta.

Brandon Corporation also has plants in Greenville and Woodruff.

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ELDORADO, TEXAS—A new industry for Texas is the West Texas Woolen Mills in Eldorado. The new factory, which is equipped to process 750,000 pounds of raw wool, clean basis, began operations last November.

Raw wool, scoured by the Cen-Tex Wool & Mohair Company of San Marcos, is processed into blankets, suitings, neckties, yarns, batting, and similar materials.

The plant is the enterprise of J. M. Christian, textile engineering graduate of Texas Technological College at Lubbock, and his father, J. B. Christian, president of the First National Bank of Eldorado.

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ROCK HILL, S. C.—The Aragon Cotton Mills will soon award the contract for the construction of an addition to the plant. This will be the second addition to be constructed within the past two year.

The new building will measure approximately 60 feet in length and will be an extension to the mill on the eastern end of the present structure. The annex will contain three stories with a basement.

---

ELBERTON, GA.—United Merchants & Manufacturers, Inc., is establishing a mill for the production of plain weave and jacquard upholstery fabrics at Elberton.

The building, now empty of machinery, formerly housed the Seaboard Silk Mills, a subsidiary of Susquehanna Silk Mills. Negotiations for the purchase of the property are understood to be nearing completion.

The new owner will install 48 jacquard looms at once and plans eventually to have an equipment of 150. The product will be for Cohn-Hall-Marx Co.

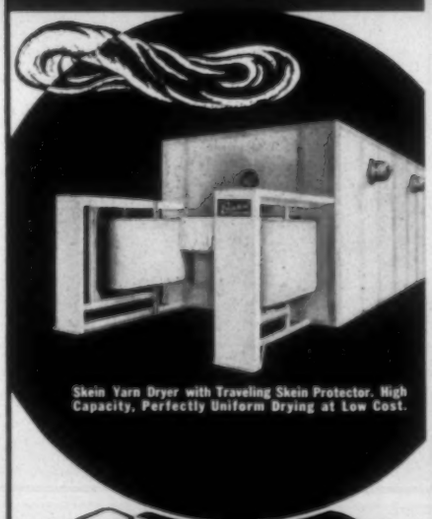
# DRYING MACHINES

## that are never bottlenecks!

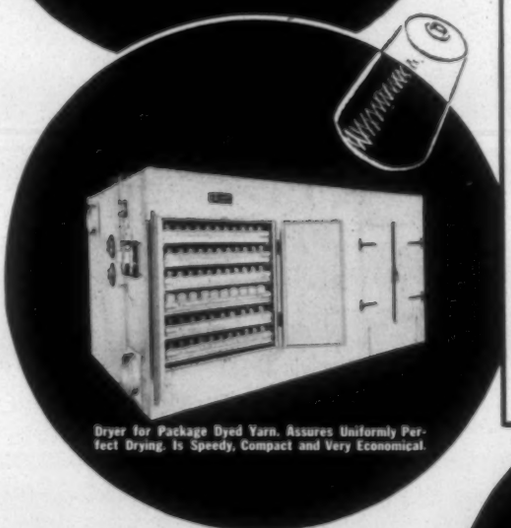
Speedy, Compact Dryer for Cotton and Wool Raw Stock, Rayon Staple Fibre, Linters, Acetates, etc.

Many drying machines are in operation today that might better be scrapped. They do not dry uniformly or speedily... are shut down too frequently for repairs... are not adequate to the needs of the mill ... require too much space for their capacity... use too much steam and power ... are often dirty and hard to clean.

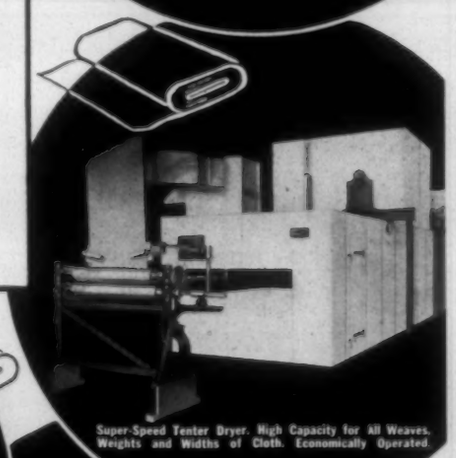
Today's Proctor Dryers overcome and eliminate all the shortcomings of these old dryers and make possible really important savings.



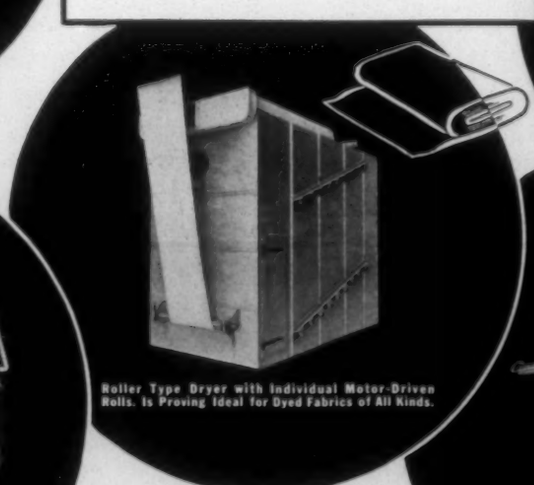
Skein Yarn Dryer with Traveling Skein Protector. High Capacity, Perfectly Uniform Drying at Low Cost.



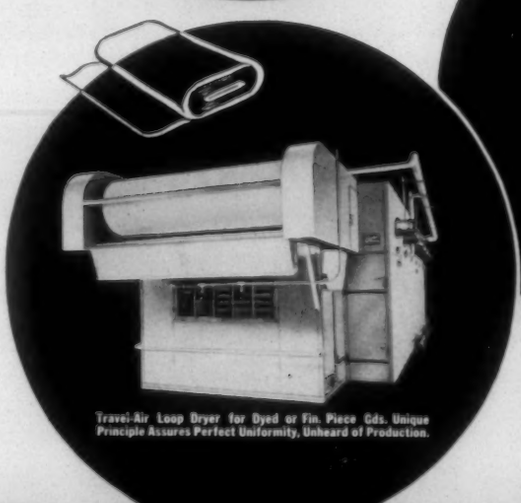
Dryer for Package Dyed Yarn. Assures Uniformly Perfect Drying. Is Speedy, Compact and Very Economical.



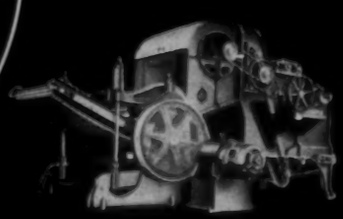
Super-Speed Tenter Dryer. High Capacity for All Weaves, Weights and Widths of Cloth. Economically Operated.



Roller Type Dryer with Individual Motor-Driven Rolls. Is Proving Ideal for Dyed Fabrics of All Kinds.



Travel-Air Loop Dryer for Dyed or Fin. Piece Gds. Unique Principle Assures Perfect Uniformity, Unheard of Production.



Squeeze Rolls that Supply an Efficient, Continuous Method for the Preparation of Dyed Stock for Drying.

# PROCTOR DRYERS

# Mill News

RHODHISS, N. C.—The weave room of Plant No. 1 of Rhodhiss Mfg. Co. has been equipped with fluorescent lights. Painting has been completed in both Nos. 1 and 2 Plants.

ROCK HILL, S. C.—Within approximately two weeks, a plush mill, to engage in the manufacture of pile fabrics such as are used in bath mats, will be put into operation here. This new mill has been opened here by Joseph P. Erkes and is housed in the mill building which formerly housed the Victoria Cotton Mills.

LEXINGTON, N. C.—Barger Bros., Mooresville contractors, have begun construction of an addition to the Lexington Silk Mill, a unit of the Burlington Mills Corp., of Greensboro, which, it is said, will almost double the present floor space of the plant.

The cost of the building and equipment to be installed were not made public by officials of the Burlington Mills Corp.

SELMA, ALA.—Announcement has been made that the California Cotton Mills Co., which operates units here, at Uniontown, Ala., and Oakland, Calif., has awarded the contract for the construction of a warehouse addition at the Oakland unit which will represent a cost of approximately $50,000. The Alabama mills are units of the one at Oakland.

CENTRAL FALLS, N. C.—K. H. Boydell, plant manager of the Central Falls Mfg. Co., weavers of rayon fabrics here, announces the company has awarded a contract for construction of a two-story addition with a total of about 20,000 square feet of floor space. The first floor will be used as a warehouse for yarns and cloth, while the second floor will be a cloth room.

CARROLLTON, GA.—Mandeville Mills has under construction a new building, 50x100 feet, two stories. The building is to be used for shipping and yarn storage. It is of typical cotton mill construction, brick walls, steel I-beams, steel window sashes and doors. The plans and specifications were prepared by Richard C. Shaw, plant engineer for the company, who will supervise the construction. Present plans are for completion of the building by April 1st.

KINGS MOUNTAIN, N. C.—Cleveland County's only textile plant not in operation at present is expected to be opened under new management within the next few months.

Charles S. Williams, of this city, and a silent partner have purchased the Mountain View Mill property, which is located a short distance off the Gastonia Highway, about four miles from Kings Mountain, it is reported.

According to plans now being completed, machinery for the manufacture of fine combed yarns will be installed immediately at the mill, which has not operated for the past two years.

The name of the mill will be changed to the Frieda Mfg. Co., and actual operations are scheduled to get under way around June 1st. Approximately twenty-two operatives will be required to operate on each shift.

STUBBS, N. C.—The Buffalo Mill has been purchased from I. O. Blumenthal, of Charlotte, N. C., by R. J. Woods.

The purchase includes the mill, 122 acres of land, a store building and 27 dwellings, at a cost of $25,000. The new owner has been operating the mill on lease.

The mill which now has 72 employees and makes coarse cotton yarns. It has 3,100 spindles.

Mr. Woods said there would be no change in the operating personnel or policies. Mr. Woods also operates the Paterson Mill at Paterson in connection with the Buffalo Mill. He leases the Paterson business.

RHODHISS, N. C.—The Park Mfg. Co., of Charlotte, N. C., is installing one 10 H.P. 550-volt Push Button Type Freight Elevator in the Rhodhiss Mfg. Co., Plant No. 1.

GENEVA, ALA.—Bama Cotton Mills, purchased in 1934 by D. H. Morris, Jr., and Joel E. Johnson, has been increased during the seven-year period from 106 to 380 looms, from 6,300 spindles to 13,000, from approximately 100 workers to 450, and the warehouse space has been doubled.

The card room has lately been modernized, and modern equipment placed in the spinning and winding rooms.

JOHNSON CITY, TENN.—Early this month work is scheduled to be completed on the construction of an addition to the Gloria Rayon Mill, a unit of the Burlington Mills Corp. The addition is estimated to provide 10,000 additional square feet of floor space. There will be offices, dressing rooms, storage space and space for rearranging machinery in the new building.

MARION, N. C.—The Clinchfield Mfg. Co. is just completing painting the interior of the entire two plants. As soon as the weather permits, work will begin on painting the exterior of the two plants. This work involves an expenditure of approximately $15,000 when work is completed, 700 gallons of one-coat white being used. A barn, formerly used for horses and mules (in horse and buggy days), has been renovated into a community house and Boy Scout headquarters. This building consists of a library, a large reading and lounging room, kitchen with electrive stove and nice lavoratories.

## Fire at Asbestos Company

Charlotte, N. C.—A minor explosion in a drying oven caused a fire in an outside building of the Southern Asbestos Company plant here March 12th.

Mrs. Frony Crump, of Indian Trail, was at work on the drying machine at the time of the explosion but was not seriously injured. Sveeral other workers were in the small building but none was hurt.

Firemen quickly controlled the blaze.

## New Lug Strap Support

Wingo Herron, of Augusta, Ga., is the inventor of a lug strap support, intended to make adjustments of the lug strap exact and permanent. The support, which is made of high grade steel, clamps both ends of the strap to the picker stick, preventing excessive wear to both.

Herron lug strap supports are already in use in a number of well known Southern mills. The device is covered by Patent No. 2,140,675.

## Roger W. Cutler Awarded Temple Roll Patent

On March 4, 1941, a patent was issued to Roger W. Cutler, of Boston, Mass., covering improvements in temple roll manufacture (U. S. Patent No. 2,233,995).

The temple roll covered by the patent has been merchandized and sold for the past year by Roger W. Cutler as "Everwear Temple Rolls." The Everwear roll as covered by this patent is said to have unusual durability, is immune to the action of various chemicals and oils, and it has a gentle but firm grip on the fabric. The roll is manufactured from one of the newer type thermoplastic materials, developed during the past few years.

The patent consists of eight claims, of which the following claim—No. 7—is typical:

"A temple roll comprising an elastic body, the surface structure of which consists of a tough resilient thermoplastic material selected from the family of compounds consisting of synthetic rubbers and polymerized vinylhalides, ribbed spirally and inert to both oil and acetic acid, said body including in its composition a sufficient proportion of short fiber distributed therethrough so that a multiplicity of said fibers project from the surface of said body, aid fibers being held in place solely by said thermo-plastic material."

## 1940 Rayon Consumption for Broad Goods 18% Above 1939

Two hundred and fifty-six million pounds of rayon filament yarn (18% more than in 1939) were consumed during 1940 in the weaving of broad goods by a large group of substantial mills which recently reported data to the National Federation of Textiles, Inc., or to the National Rayon Weavers' Association. This was 87% of the total shipments by yarn producers, in 1940, for broad woven goods purposes. The remainder of 13% is accounted for by a large number of relatively small mills from which reports were not received and by the fact, of course, that not all of the yarn shipped in 1940 was actually consumed within that year.

Staple fiber consumption reported by the same mills was 32 million pounds in 1940, 6 million pounds less than in 1939. The 1940 figure is about 32% of the total quantity (99 million pounds) of staple fiber made available in 1940 through domestic production and imports combined.

In 1940, viscose and cuprammonium accounted for 58% of the total consumed; acetate, 42%. In 1939, the respective proportions were 64% and 36%.

Northern mills used 55% of the total consumption of filament yarn reported in both 1940 and 1939; Southern mills 45%. As to staple fiber, Northern mills reported 26% of the total consumption in 1940 and 29% in 1939; Southern mills 74% and 71% for 1940 and 1939, respectively.

## Howard Bros. Moves Into Modern New Home

Pictured below is the handsome new home of Howard Bros. Mfg. Co., in Gastonia, N. C. The building, which was just recently completed and occupied, is of brick and

steel mill construction and is modern in every respect. It is located at 219-223 South Linwood street, just off the "textile highway," as Route 29 has come to be known. The 8,000 square feet of floor space affords approximately three times as much room as was available in the former Gastonia home of this concern.

Carl M. Moore

The equipment includes the most up-to-date machinery for recovering top flats and re-winding licker-ins. The plant will stock cylinder and doffer fillets, stripper, emery, and burnisher fillets, stripper sheets, and will maintain a complete service for mills in this section.

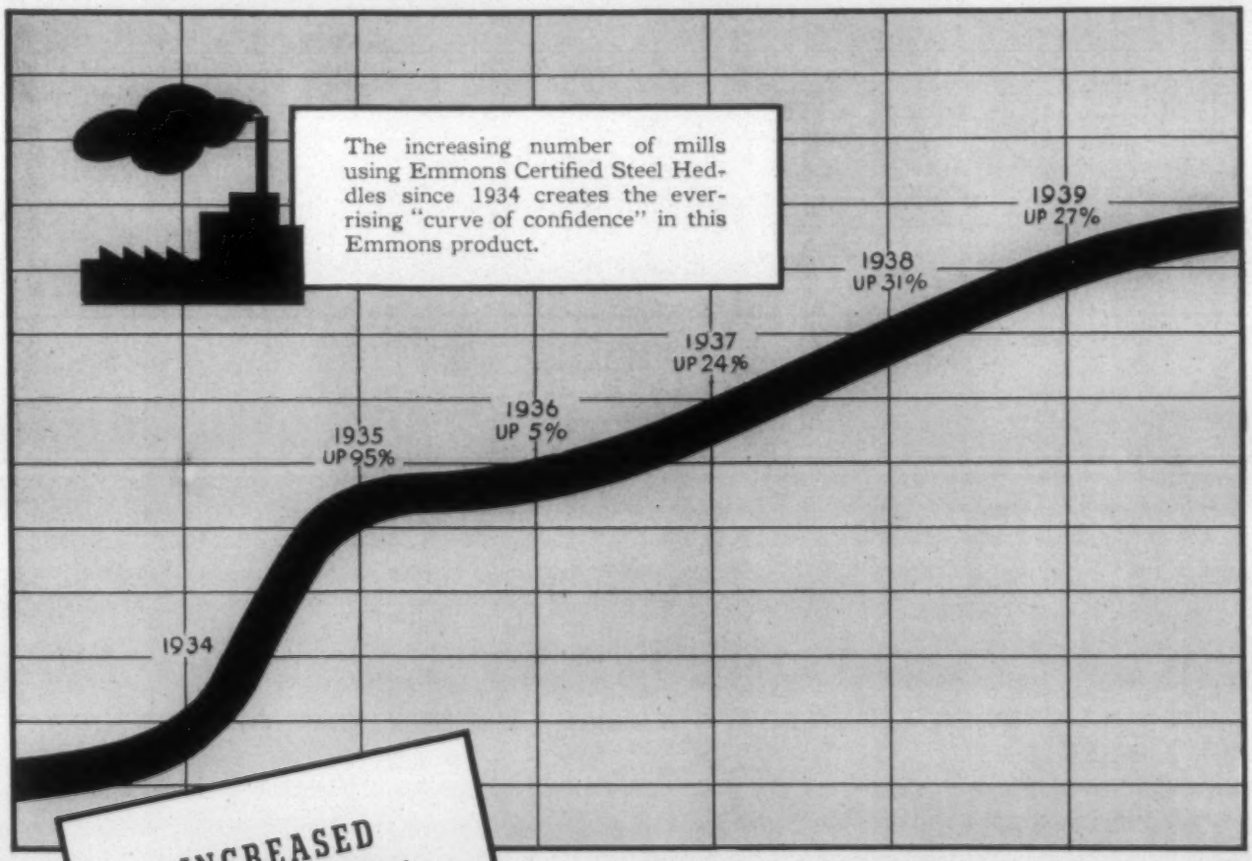
Carl M. Moore, successor to the late E. M. Terryberry, who handled the sales of "Tuffer" products in the Carolinas and Virginia for many years, has been in charge of the Gastonia branch since it was first established. Mr. Moore, who is widely known throughout this territory, works under the direct supervision of the company's Southern agent, Guy L. Melchor, whose headquarters are in Atlanta.

FOLLOW THE EMMONS

# CURVE OF CONFIDENCE

Note the ever increasing number of mills buying Emmons Certified Steel Heddles! Consider the reason: consistently good performance, based upon rigid *quality control* in manufacture.

From choice of metal to the extra operations which streamline the heddle eye, Emmons inspectors watch every step, giving a final examination before attaching the "Inspected and Approved" seal. Then a famous outside Testing Laboratory buys samples in the open market and tests them for durability, corrosion-resistance, and smoothness of eye. Here's a basis for buying that you, too, can rely on!

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LOOM HARNESS COMPANY

LAWRENCE, MASS. . . . . CHARLOTTE, N. C.

SEE LATEST TEXTILE WORLD YEARBOOK FOR DETAILS ON ALL EMMONS PRODUCTS

## Cotton Research Laboratory Burns

New Orleans, La.—Guards were stationed about the $1,500,000 Southern Regional Research Laboratory, heavily damaged by fire March 1st, while agents of the Federal Bureau of Investigation sought to determine the cause of the blaze.

The FBI was summoned in the investigation by a representative of the Department of Agriculture after it had been discovered that two tires of the watchman's automobile had been deflated, apparently before the blaze burst out in the roof of the huge four-story building.

Louis Latour, 23, the watchman, could offer no explanation for the tire deflations and told investigators he would not have needed the car to turn in an alarm because he phoned for help as soon as he saw smoke issuing from the roof.

Construction of the building was started in December, 1939, under Congressional appropriation for the Department of Agriculture and was scheduled to be completed March 15th. It is one of four research laboratories designed to discover new scientific and chemical uses for cotton and other farm crop surpluses.

## Bomb Shields Of Cotton Proposed

Cotton instead of reinforced concrete for air raid shelters is proposed.

E. C. Wallace, New York engineer, who conceived the idea, told members of Congress that seven-foot thickness of cotton would resist the penetration of a 6,000-pound bomb falling from 30,000 feet, whereas a 2,000-pound bomb falling 15,000 feet would penetrate six feet of reinforced concrete. The cotton can be fireproofed, it was said, so that incendiary bombs would have little effect.

Mr. Wallace's idea stirred enthusiastic interest among members of Congress from the cotton producing States.

Representative Frank W. Boykin (D.), of Alabama, explained it in a letter to members, and said he hoped to get a joint demonstration by the Army and Navy with the Air Corps dropping the bombs.

Mr. Boykin said the use of cotton for all-purpose shelters would absorb large quantities of surplus cotton.

Plans of the designers call for spans of 200 feet or more with clear ceiling and insulated sheet steel sidewalls. The roof would be made of seven-foot thick baled cotton tied in place by heavy steel wire netting.

## Consumption of Lubricating Oils High

Reflecting the current high rate of industrial production, domestic demand for lubricating oils is now running at or above the best levels reached during the early part of 1937, it is learned.

While the rate of improvement in the statistical position of lubricating oils during the past few months has been retarded by the sharp curtailment in exports since last summer, domestic consumption is now expanding so rapidly that, despite an increase in production, the recent rise in inventories has been stopped.

## Heath Donates Cloth To "Bundles for Britain"

Chester, S. C.—A large amount of blanket material has been donated by Gilbert B. Heath, of Chester, president of the Manetta Mills, operating plants at Lando, eastern Chester county, and Monroe, N. C., to the Chester unit of Bundles for Britain with which the organization will make a number of blankets to be sent to children of Britain. Mr. Heath had the material cut at the mills in the right lengths so that the local organization could hem them according to directions, after which they will be sent to New York and on to Britain.

## The Development and Growth of the American Dyestuff Industry

(*Continued from Page 90*)

mediates, many other achievements of prime importance were brought about. Research has found uses for the many products resulting from commercial production. Waste material was utilized. The field of coal tar products has broadened to an unheard of extent. Striking examples are the successful production by Du Pont of neoprene chloroprene rubber, the synthetic product which is finding diversified uses in industry, replacing natural rubber in many ways, synthetic camphor, rubber accelerators, antioxidants, photographic developers, tetraethyl lead which is a basic ingredient in the anti-knock fluid for Ethyl gasoline, perfume bases, pharmaceutical chemicals and others. Almost all of these are derived, by means of various chemical processes, from coal tar compounds. The production of phthalic anhydrids, originally the process which made synthetic indigo possible has become a major industry because phthalic anhydride plastics are among the most versatile of materials.

In addition, to assist the users of dyestuffs in applying them most effectively, a wide range of textile assistants has been developed. These include wetting and dispersing agents, penetrating and levelling agents, mercerizing assistants, detergents and many others, some of which are made from the same intermediates as the dyes with which they are used.

In 1939 producers of synthetic organic chemicals estimated the gross cost of research at $14,077,000. Research in the dyestuff industry covers, very broadly, three distinct problems. The creation and development of entirely new dyes, the improvement of the properties, physical characteristics, etc., of existing products and the study of newer and more simplified application methods.

Through research, many new and improved products are added to the range each year. A little over a year ago the Du Pont Company placed eight new dyestuffs on the market as a result of Jackson Laboratory research. Technically known as formaldehyde aftertreated direct colors, they filled a very definite need, the trade has found them of value and they are coming into extensive use. But before these dyes could be commercially adopted, three years of intensive research were required and over 4,000 samples submitted for testing. In connection with the development of new colors, it is frequently necessary to manufacture new intermediates as well. And that readily explains why research is costly but vital. A continuation of the speedy trend toward a greater production of the higher quality dyes, especially vats and azoics was evident in 1939 and research also resulted in the development of a number of new dyes.

### Technical Service

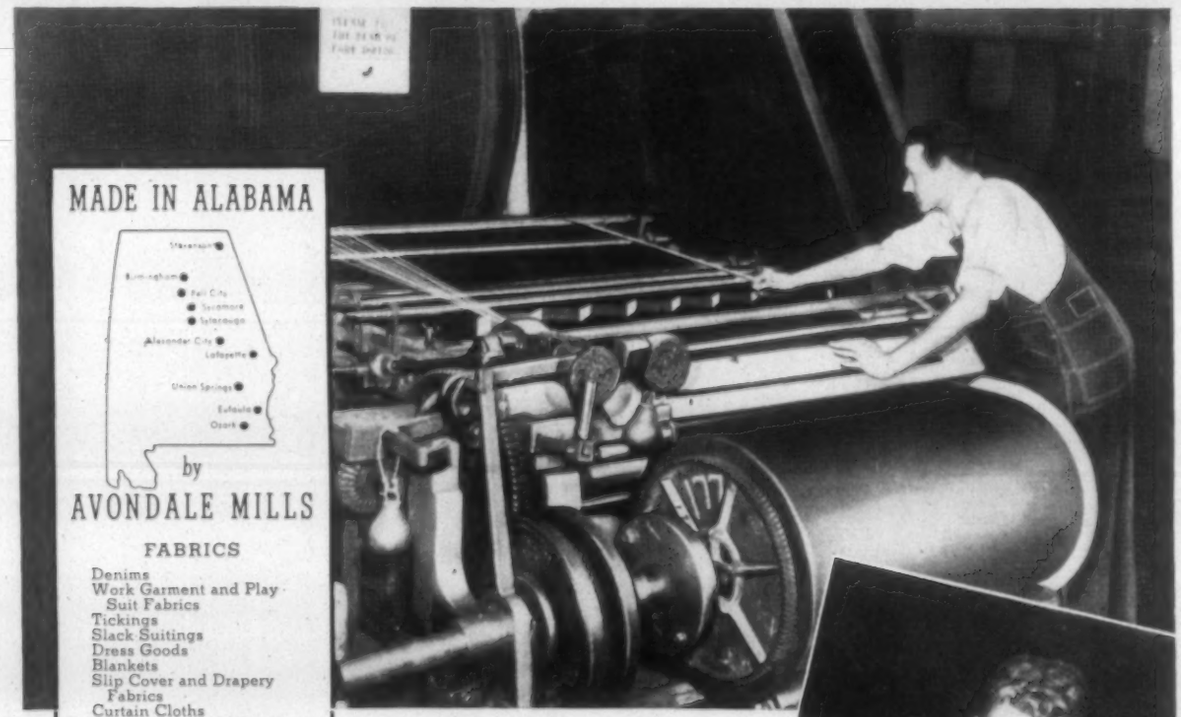
When synthetic dyes began to replace the natural dyestuffs which had been in use for thousands of years, it was necessary for the manufacturer to show the dyer how to modify his methods in order to get results with these new materials. This necessity was the beginning of the service which the dyestuff manufacturer has continued to give. In no other instance does the manufacturer expend the same effort to insure that the consumer obtains the detailed information which will enable him to secure satisfactory results.

### Looking Back

Twenty-three years ago when a study was made of the embryonic American dyestuffs industry, a report was made to the Committee of Ways and Means of the House of Representatives. In part, it stated: "There is no insuperable obstacle to the growth of this industry in the United States on a sound economic basis. The essential raw materials are as available as in any other country. Coal tar, the basic material, can be supplied in practically unlimited quantities at a low cost." "There is, however, an urgent need for chemists. This does not mean that in training and ability American chemists are in-

# *Everything* THE CONSUMER LOOKS FOR IN OVERALL FABRICS...

# AVONDALE DENIMS



## MADE IN ALABAMA




by

## AVONDALE MILLS

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Denims
Work Garment and Play Suit Fabrics
Tickings
Slack Suitings
Dress Goods
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Curtain Cloths
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**CURRIER & CO., Inc.**
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Amsterdam, N.Y., Reading, Pa.
*Middle West*
**W. C. NAPIER, JR.**
222 West Adams Street, Chicago
*South*
**W. W. CREWS**
James Building, Chattanooga, Tenn.
**DARDEN HAMPTON**
P. O. Box 2139, Greensboro, N. C.

*Average residual shrinkage of this fabric in the original piece does not exceed 1% (Test Method CS 59-36)

SHOWN at a Slasher, which prepares the warp yarn for weaving, is Joe Brazier. Like his fellow workers, Joe knows his job and does it well...never failing to contribute his share to the quality character that distinguishes Avondale denims. His son Wallace, aged 13, is seen at the Avondale Recreation Club. Both he and his dad are wearing overalls of Avondale denims.

The function of industry is to take certain things that grow on the surface of the earth, or are buried beneath the surface, and convert them into sizes, shapes and colors that the public wants; and to do that at the lowest possible cost, without any exploitation along the route.

SELECTED COTTON
GENUINE Avondale FABRIC SANFORIZED SHRUNK*
100% AMERICAN COTTON
MADE IN U.S.A.

*Avondale is a member of the Associated Denim Producers, whose promotional activities are helping to expand the market for overalls.*

## AVONDALE MILLS of ALABAMA

ferior to those of foreign countries, but merely that there are not enough of them to meet the situation and that very few are experienced in the particular branch of chemistry involved. In many branches of the chemical industry America has a position of unquestioned leadership acquired through the skill of American chemists and engineers. Time must elapse, however, for sufficient training and experience to be acquired."

The passing of over two decades has conclusively proven how true that statement was. We have today one of the most outstanding groups of chemists, chemical engineers and scientists to be found anywhere. They have helped build a synthetic organic chemicals industry which is second to none and dependent only upon the natural resources of the country and their own ability and initiative. The horizon is broad and opportunities are ever there for the betterment of existing products and the development of new. The chemical industry has taken a leading role in the American scheme of living.

## Stainless Steel

*(Continued from Page 93)*

### Machines for Dyeing

Many kinds of dyeing machines are employed in these operations. One of the most widely used types is the "padder" for applying direct colors to cotton and cotton-rayon products. Its tank is used to feed the dyeing solution, guide rolls, a dye box, squeeze rolls and plaiting equipment. Excellent results can be obtained from a stainless steel lining for the dye box and tank, rollers and take-off reels.

### For Big Yardages

When big yardages of the same shade are being produced by the textile manufacturer, continuous apparatus is used. The principal application of this type of machine in piece dyeing is for sulfur colors. It consists of a padder and full width compartment washer. The materials are washed in the compartment washer and color is added on the padder.

Stainless also has many applications in after-treatments for textiles. For example, when sulfur colors are employed, a sodium bichromate solution with copper sulfate and acetic acid is often used. These solutions are best mixed in both the stainless tank and the compartment because of the corrosion resistance and easy cleanability of the stainless equipment.

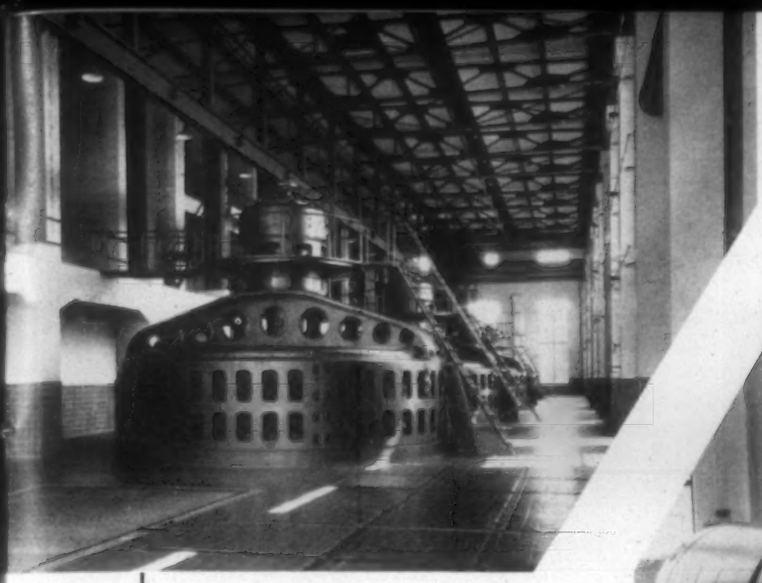
### Other Applications

Here are a few other suggested applications for Stainless Steel equipment:

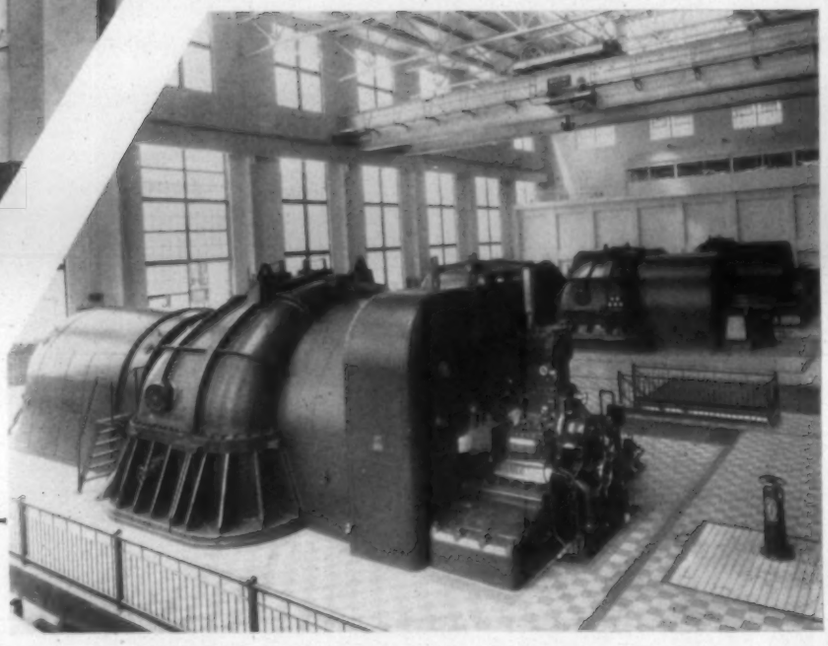
Ageing Equipment.
Bleaching Equipment.
Desizing Equipment.
Any Dyeing Equipment.
Extractors.
Linings.
Sinks
Baffle Plates.
Buckets.
Drying Cans
Dye Sticks.
Fulling Machines.
Mixers.
Sizing Machines.
Beakers.
Carbonizing Equipment.
Drying Equipment.
Evaporators.
Kettles.
Rolls.
Table Tops.

### Care of Stainless Equipment

While this equipment should give many years of thrifty, efficient service, good care will produce best results from the investment. A few suggestions are listed here:



Steam Power Insurance
675,000 H. P.



Water Power Plants
800,000 H. P.

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Sane Taxation, Abundant Water and Ideal Climate

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Power Lines Cover the Piedmont Section of the Carolinas.

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## DUKE POWER COMPANY

CHARLOTTE, NORTH CAROLINA

1. New stainless steel equipment should be thoroughly cleaned before using. Scrub with a warm 20 to 30 per cent solution of nitric acid and then rinse with hot water. This is advisable because foreign matter may accumulate on the surface of the metal during shipment and installation.

2. All units should be drained and cleaned at least once a week if possible, regardless of the nature of solutions used. Wash with hot water and dry with an air hose or brush the bottom as free of water as possible and then allow to dry.

3. During cleaning all lint, pieces of brush bristles or other solid particles should be removed.

4. After cleaning and drying, the equipment should be exposed to the air for two or three hours. If this is not possible, the use of alkaline or oxidizing cleaning solutions will be helpful.

5. If scum, lint or other solid particles should still cling to the stainless steel after washing, the unit should be thoroughly scoured. Use one of the popular brands of household cleaners such as Babo, Dutch Cleanser or Sunbrite.

6. Ordinary steel wool should never be used. Iron particles are likely to cling to the stainless steel and start superficial rusting, which in turn may cause a local condition favorable to corrosion. This also applies to all other metallic scouring materials except stainless steel wool.

7. If any discoloration should appear on the surface of stainless steel it can in most cases be removed by "Nu-Steel," a product of the Pynosol Laboratories, Inc., 215 No. Aberdeen St., Chicago, Ill.

8. Occasionally particles of rubber will break away from a hose, especially when steam and hot water are used. When these stick to the stainless steel, they should be removed as outlined under suggestion No. 5.

9. The proper grades of stainless steel offer excellent resistance to hypochlorite bleach solutions. However, it is not recommended that this type of solution be kept in the equipment longer than six to eight hours. After draining, the unit should be cleaned as outlined in No. 2.

10. It is good practice to rinse a unit with water immediately after a solution of any type is drained from it.

11. In cyclical work, where it is customary to clean the unit between operations, suggestion No. 2 need not be observed.

## Problem of Cotton Fabric Shrinkage Solved With Sanforized-Shrunk Process

(*Continued from Page 97*)

by the above mentioned standard wash test, but for practical purposes a licensee is allowed a working tolerance to the insignificant maximum limit of three-quarters of one per cent of residual shrinkage or gain in his fabrics, warp or filling, and still can apply the Sanforized-Shrunk label. The nearly billion yards of cloth Sanforized last year is beyond easy comprehension. With this amount of yardage a celestial aviator could string a loop from the earth to the moon and back, and have enough left over to wrap thrice around the world.

This new development has all taken place during the last decade, and thirty years ago, when the TEXTILE BULLETIN was first published, was unknown and unthought of. Sanforizing has earned its place alongside of those other great outstanding inventions and developments that had such major influence in giving us the modern cotton textile industry, such as Whitney's gin, mercerizing, the automatic loom, vat dyes, and now Sanforizing. These all redound to the benefit of the general public in better and more satisfactory wearing apparel. Even our defense forces this time will be clothed in cotton garments as modern as the Garand rifle and other new equipment. It would seem that Sanforizing has placed the final cap stone on the ideal textile fabrics for human apparel, so it is difficult to envisage what the next thirty years has in store. Many feel that the laboratory with its synthetic fibers will eventually erect a monument over King Cotton, but he is very much alive today with a new eight million bale record of annual domestic consumption—long live the King!

## Thirty Years Ago There Was No Fluorescent Lighting

(*Continued from Page 101*)

### Modern Acceptance of Lighting

The past 30 years have developed greatly increased appreciation of what lighting can do for our every-day living. To look over a modern textile operation and its community of interest, we find that today lighting is being accepted as an important element in the following phases: Office lighting is being constantly improved in order to increase the efficiency of office operation. Not only does this include adequate lighting of the office itself, but even the application of supplementary lighting to the many modern types of office equipment. The designer not only uses light in creating his designs, but he has to take lighting into account to understand how those designs will look under outdoor lighting, ball room lighting, home lighting, etc. The maintenance department must think of lighting both because they have to maintain it for the production areas and also because it is a great help in the operation of their own work. The production department, today, greatly appreciates what lighting can do towards keeping the mill up to peak efficiency and reducing the production of second rate goods. Contrasted with ¼ watt per square foot that was considered good lighting 30 years ago, the modern textile mill uses upwards of two watts per square foot for its present-day lighting.

As we pointed out earlier the increased efficiency of light sources means that our modern production engineers are using more light in proportion than this comparison of watts per square foot indicates of itself.

With the competition between plants today, lighting has become increasingly important in the inspection department. With prices competitive, with goods available, the buyer becomes much more interested in quality and that requires careful inspection in the factory. Good inspection requires good illumination. The testing of goods for market requirements frequently employs the use of light.

The sales department uses lighting for display of samples and in the stores lighting plays an important part in the sale of goods. The advertiser uses light to display his

goods and make them more attractive. In his use of photography to display samples, again he uses light.

In the textile community, home lighting has become of increasing importance. Street lighting is of interest from a safety standpoint and frequently protective lighting around the plant becomes a necessity. Thus we find that in 30 short years we have progressed from that phase of lighting where we were competing with darkness to a point where lighting touches every phase of our operation and every-day life, and is increasingly appreciated for what it can do.

Thirty years ago when electrical current was relatively expensive, when artificial lighting sources, such as lamps, were relatively expensive, it was only natural to think of economizing in our lighting systems to the greatest extent. This seemed more justified due to our lack of knowledge of what lighting could do for us. During the intervening 30 years, as we have already pointed out, the reduced cost of operation, the reduced cost of lamps themselves, the increased efficiency and the increasing appreciation of what lighting can do for us, has led to a new economic approach to the lighting system.

The average of industry today indicates that a good lighting system amounts to only about two per cent of the investment in a production plant. Thus if we attempt to save on the installation of a lighting system, we are playing with only one per cent of our total cost. We think nothing of spending a great amount of money for modern, high production machinery, and yet, unfortunately, some of us hesitate to spend the little necessary for a good lighting system to keep that machinery operating at its best efficiency.

Swinging over to the production cost we find that the operating cost of a good lighting system is only about a half of one per cent of our total production cost. If, therefore, we attempt to save on this item we are still playing with less than 1% of our total cost. In this same analysis materials amount to approximately 50% of the production cost. If, therefore, we save on the lighting system and thereby risk the creation of only 1% of second rate goods, we are apt to waste the whole cost of our lighting system in this increase in second quality material. From these figures it is easy to understand that the average plant can well afford the best available lighting system possible. It is not only justified economically in production costs and in the saving of materials, but it also is a great boon to employee-welfare and general morale of the whole operation. This modern appreciation of what lighting can do for an industrial plant has all come about during the last thirty years.

### Yes, Thirty Years Ago We Did Not Have Fluorescent Lamps

As we have pointed out, there have been great strides made in the artificial lighting of textile mills. Today we have available a wide variety of low-priced, highly-efficient incandescent lamps for use in textile mills. This also includes a number of types designed to withstand the vibrations which are present in a great many operations. As a companion to these incandescent light sources, is an enormously wide variety of reflectors and other control equipment, ranging all the way from supplementary light reflectors to totally enclosed vapor proof fixtures. We

have modern versions of the Cooper Hewitt Mercury arc lamp, and modern versions of the high-pressure arc lamp also available with a variety of control equipment, and we have the fluorescent lamps in a variety of sizes and in a wide variety of industrial and commercial fixtures. With the fluorescent lamps we have daylight colors, and white colors, all of which serve to allow us to use high-level illumination of whatever color quality we think most advisable for the operation. These new sources have a proportionately much lower heat radiation value so that we can have the higher levels of illumination with increased comfort. Air conditioning can be carried on much more economically with these more efficient light sources. Better light distribution, less glare, a great reduction in shadow—and all of these are contributed by the fluorescent lamps of today.

Lighting has reached an era of appreciation, far outdistancing the conditions of 30 years ago. It has become so increasingly important that today we find the larger organizations retaining lighting experts as part of their continued operating staff, whose job it is to make lighting do the best that it can for their regular production operation.

Just a few years ago, the Illuminating Engineering Society sponsored specialized studies in the effect of lighting and how it could be improved in various industries. In the textile field specific studies were carried on in both the silk and cotton industries and the result of these studies by both lighting engineers and textile production men contributed much to the technique of improving the lighting of these areas. Many of the things learned during these studies have more recently been developed into available equipment.

The modern developments of faster machines, more complicated machines, increased plant humidification, air conditioning, finishing equipment, and other structures, such as Jacquard looms, have added materially to the problem of lighting textile mills, yet the manufacturers of lighting equipment kept pace with all these and it is possible today to produce a textile mill which is almost ideal from a lighting standpoint.

Faster machines require closer attention in order to reduce spoilage and to keep production up to peak, and that again puts an added emphasis on lighting. Artificial lighting with electric lamps today is only 60 years old. We saw great strides in the development of light sources in the first thirty years, and we have seen greater strides in both the development of light sources and the application of light in the last thirty years. And we look with increasing interest to what the next thirty years will do to this important phase of the textile industry.

## New South Bend Lathe Catalog

The South Bend Lathe Works, South Bend, Ind., has just issued a new general catalog. The catalog has 112 pages and contains over 240 illustrations. It shows 50 different sizes and types of South Bend Back-Geared, Screw Cutting Lathes for manufacturing tool room and general shop work. A copy will be mailed on request to any firm or individual.

## Personnel Program Becoming Increasingly Important To Mills

(*Continued from Page 104*)

words, the selection and placement of employees in the future will be based on a more scientific procedure that will be beneficial both to the employee and to the employer. Old haphazard, hit-or-miss procedures will soon go the way of obsolete machinery and antiquated methods. The personnel department of the future will also give more attention to transfers, promotions and dismissals. These things will not be passed over as lightly as has been the case in the past, and each case will receive fair and impartial treatment. Labor turnover, too, will be given proper attention.

In the future one will see more thought and attention given to wages and wage systems. Most wage plans have grown more or less like "Topsy," but wage plans of the future, to be fair and equitable, must be based on scientific study conducted by men who know how to apply wage principles in a practical and common-sense way. Many labor disputes will be eliminated when we learn how to handle wages and wage systems in a sound and common-sense manner. Few things affect an employee more than the pay he receives and the system on which it is based. Proper financial incentives can play a big part in the progressive development of the Southern textile industry.

### Training Employees and Supervisors

Another important activity to which personnel programs must give a great deal of attention is the matter of training both employees and supervisors. Employees today and in the future must receive better training if the industry is to make progress. This will include both training in vocational classes and on-the-job instruction. Supervisors, too, must receive more training and information than has been given them in the past. With all the new problems confronting industry today, it becomes highly important that supervisors be well informed and adequately trained if they are to give the type of leadership that industry needs. The future of employer-employee relations depends largely on how well this whole training program is done.

Safety and health are phases of the personnel program that demand considerable study. Accidents cost both employer and employee money and otherwise cause inconvenience and loss. There is a close relationship existing between an employee's health and his safety record. With this thought in mind, industry is giving special attention not only to the safety phase, but to the health of its employees as it relates to accident prevention and to the general happiness of the working force. In addition to providing certain safeguards as a means of promoting safety, many industrial concerns are giving attention to good mill housekeeping and other things that help make ideal working conditions.

The things mentioned are only a few of the activities to which the personnel department of the future must give a great deal of thought and attention. The present situation and the background of thirty or more years of progress in industrial relations throughout the textile in-

dustry of the South gives a real challenge to the industry today to press forward to a future of real accomplishment in the field of human relations. As the textile industry in the past has met the challenge, so will it meet the challenge of the present and the future. There is a real opportunity in the textile industry to develop a personnel program that will be outstanding in American industry.

## Progress in Textile Mill Electrification

(*Continued from Page 95*)

comber has contributed many benefits to the mills. An outstanding example of modernization through electrification is the all-electric precision sliver lap machine.

This machine is now driven by a totally enclosed induction motor, with a single-gear reduction unit, and a motor-mounted disc brake. Electric stop motion on the cam sliver rolls, in conjunction with the brake motor, assures instantaneous stop when the sliver is broken, or becomes sufficiently thin to operate the stop motion.

Though operated at higher speeds than formerly, there is ample sliver left on the table, when stopped for a sliver brake, to permit uniform piecing up. Electrically operated protective devices are provided to assure safety to the operator.

The comber is also typical of the preparatory machines that require individual electric drive and electrical control equipment for most efficient operation.

The drawing frames are particularly well suited to individual motor drives. Uniform speed is essential for satisfactory operation and electric stop motion assures the same benefits as on the machines previously mentioned.

Roving machines (slubbers and intermediates) have undergone many changes in design in recent years for improved quality and increased production and the adoption of the long draft system. The screenless open induction motors with primary resistance control provides smooth, slow-starting of the flyers and bobbins, and reduces end breaks in the roving at the starting period. The motors and control are now "tailored" for this application.

### Spinning

The spinning department is the greatest consumer of power in a cotton mill, and it is natural that any economy, such as saving in power, or getting the highest production for the power consumed, would be most attractive to mill operators.

The large group drive motors originally used were replaced by four-frame drive motors many years ago. The four-frame drive is used quite extensively in mills where fixed numbers of yarn are spun year after year, and where space is a factor.

In recent years, the demand has been for an individual motor on each frame. In mills where various yarn numbers are spun, and frequent changes in speed are required, the individual motor drive is an outstanding contribution to the industry. Flexibility of operation and reduction in power equipment are brought about where off-peak production is occasionally called for and offers effective advantages over the previous types of drives.

The simplified control for these motors consists of across-the-line starters, fuses, or circuit breakers all assembled in one enclosing case, and mounted on the foot

end of the spinning frame, thus making a complete operating unit for each frame. Any necessity for work on a frame means that it can be isolated from the line and assures complete safety to the men making repairs to the frame.

Other features, such as time-delay drop-out relays in the control have proven highly desirable equipment, especially in locations where lightning storms interrupt production. These time-delay relays keep the motors on the line so that if power is restored within a limited time the motors will pick up speed with no loss in production.

Another simple control device, made commercially available within the last few years, is the mercury limit switch. This switch was developed, in its primary form, for household use but soon found a useful place in the textile field where it is used on spinning frames for prefixing the fullness of bobbins. Because this switch has a minimum of moving parts, and depends upon sealed-in mercury for its make-break action, it has a very long life. Likewise, being hermetically sealed, it does not constitute a fire hazard in the lint-laden atmosphere of the spinning room. This application has definitely proved to be a time and material saver in the spinning of filler yarn where uniformly full bobbins are essential for subsequent weaving operations.

### Twisting

Twister frames, like spinning frames, were originally driven from line shafting. Today, they are universally driven by individual motors of the screenless-open construction, not only because of operating economy, but because of the necessity for cleanliness in the twisting room.

### Spooling and Warping

In the spooling and warping departments, electric drive applications have steadily increased with the advance in design of these machines. It is now possible to operate spoolers and warpers up to 700 yds. per min. and this requires very accurate application of the motor with proper electrical characteristics. In fact, without individual electric drive, the automatic high-speed spooler, as we know it today, would hardly be possible. In addition to high speed, however, electrification offers economies in floor space. Here again, electric control has made a noteworthy contribution to spooling and warping by giving "quick stop" during high-speed operation with minimum breaks of yarn.

### Slashers

Likewise, in the case of slashers, which have undergone considerable development, the application of individual electric drives and automatic electric heat control has permitted greater production of higher quality warp.

### Weaving

In this department of textile manufacturing, the elimination of the large group drive occurred a great many years ago, and the individual totally enclosed motor has become an accepted standard for operating looms. The loom motor is specially designed with ample reserve capacity for the breaking-in period of the loom, when the

load is substantially greater, and at the same time, it operates at a high efficiency after the loom is broken in.

A motor designed for general-purpose work, and which might be used for many applications, does not stand up under the service demands of looms. It is, therefore, necessary to furnish a specially designed, and unusually husky motor for this application. The loom motor of today is one of the toughest motors in the electrical industry, and even under the severe demands of loom operation it has a very long life.

New designs in looms and the need for ever-increasing speed has made it necessary for the electrical manufacturer to make analytical studies of the loom parts and their motions in order to produce motors to meet these exacting demands and still have high efficiency under all operating conditions. In many mills, loom speeds have increased on certain sizes of looms to 200 picks per minute.

The control for these motors is also designed for severe service, and is usually mounted conveniently near the motor.

### Hosiery

One of the outstanding machines in the knitting industry is the full-fashioned hosiery machine. On it, twenty-six or more women's stockings are made simultaneously. The operation is largely at high fixed speeds, but such operations as the narrowing and plating require rapid changes in speed, and occasional operation at low speeds. The load is essentially constant torque, but the operation of many heavy parts produces high inertia which requires careful consideration when selecting a suitable motor to drive the machine. The adjustable-speed, brush-shifting motor is well suited for this application. Its adjustable-speed characteristic assures maximum production and, with the adoption of dynamic braking, makes it possible to rapidly transfer from high to low speeds. The electric control for these motors is properly co-ordinated with the knitting machine so that speed changes, as well as sequence timing of the operations, are accomplished automatically.

### Finishing Plants

All woven or knitted fabrics have to pass through one or more finishing processes before they are ready for use. These operations include bleaching, washing, mercerizing, dyeing, starching, drying and printing.

The finishing branch of the textile industry has been doing a real job in modernizing equipment and methods of finishing to cope with demands of the trade for a better product.

Various machines which were originally operated as single units, and which required much extra handling of the material, have been completely changed. The modern practice is to group these individual machines and pass the cloth without stopping from one process through to the next. This grouping of machines is called a "range" or "range drive."

The major problem in operation of a range drive is speed control over wide limits. The speed of the individual units must also be controlled to compensate for stretching or shrinking of the cloth as it passes through the various units of the range.

When one or more units are cut out of the range, the

remaining units must start in step, and operate in definite relationship to one another.

These, and many other control demands, make it advantageous to operate finishing machines with individual motors.

Speed ranges may be in the order of 3 or 4 to 1, which precludes the use of alternating-current induction motors. Direct-current, adjustable-voltage and constant-voltage drives have been used to advantage and, in some cases, alternating-current, adjustable-speed motors have been utilized.

Control for the motors is designed to meet the operating requirements. Practically every application of motors and control to range drives must be "tailored" to fit individual requirements.

One of the latest applications to a range is the turbine-electric drive. In plants where considerable process steam is required, and pressures have to be reduced from boiler to pressure to process pressure, this drive is very satisfactory.

The turbines can be operated on pressures as low as 90 lbs. gauge. The turbine acts as a reducing valve and the exhaust supplies low-pressure steam for process heating. The power for driving the range is merely a by-product of the reduction of steam pressure, and is obtained at practically no expense.

With this system, the turbine is direct-shaped to the lead unit of the range, or the heaviest power consumer. The turbine is also direct-coupled to a generator that supplies alternating-current power to induction motors driving the follower units in the range. The frequency of the generator varies directly with the speed of the turbine on the lead unit and, therefore, all the follower motors are kept in step over a wide range of speed.

In the cloth-printing industry, the printing machine is another unit to which the turbine-electric drive is particularly well adapted, because the speed of the turbine is controlled over a wider range than is usually possible with d-c motors, and its high torque assures smooth starting.

### Dye Jigs

The continuous dye jig has been motorized very successfully. Constant tension on the fabric as it is wound back and forth from one reel to the other is essential to uniform dyeing.

The nip rolls, driven by a constant-speed induction motor, determine the speed of the cloth as it passes through the jig; the reels are each driven by alternating-current slip-ring motors. When operating, the winding-up reel, through a suitable net-work control in the secondary, maintains a constant tension on the cloth. The unwinding reel motor has direct current applied to the stator windings to provide a uniform drag on the cloth as it leaves the roll. This system assures very close tension control throughout the winding cycle. Previously such controls required continuous adjustment, and tensions up to 450% of the desired value were not infrequent.

Space does not permit complete detailed description of the many accessory devices which have been developed in recent years by electrical manufacturers for operating various machines at the increased speeds now demanded, but it is pertinent to mention briefly a few of the outstanding devices which have been demanded by the fin-

ishers, and which have given very satisfactory results. These may be briefly enumerated as follows:

Complete electrified guider equipment for tenter frames is now readily available. This equipment consists of motor starters and limit switches, feeler switches, magnetic-reversing switches and fractional-horsepower disc-brake motors. The action of this equipment is automatic, rapid and accurate. As the cloth enters the center, its edges are continuously in contact with the blades of the feeler switches. Each blade on the cloth exactly follows the selvedge, and any shift in the selvedge shifts the blade, and through the magnetic-reversing switches actuates the motors which operate the tenter rails, thus bringing them into correct position to take the selvedge.

The batcher-drive system has been completely electrified to provide even winding of the rolls as they leave the tenter frame. Uniform tension in the wind-up of the roll is highly essential to reduce excessive stretch in the material and also to make a uniform roll which can be more effectively and efficiently handled in the following processes. This equipment usually consists consists of a direct-current gear-motor, a starting switch, and a rheostat which is set for a desired roll tension. The torque of the gear-motor is such that it increases with the increase size of the roll. The speed of the motor decreases with the increasing diameter of the roll and the product of these two actions is even tension.

The general trend in cloth printing is to much higher speed and this makes it essential that the printers have some means of viewing the pattern in the cloth to be sure that the register of the various colors is correct. To solve this problem, a stroboscope has been developed for viewing the cloth during the high-speed printing operation. The stroboscope is synchronized with the cloth motion to obtain a stationary pattern regardless of the speed of the cloth. The equipment is also useful in detecting defects in the cloth during the printing. At the present time, printing speeds of 70 yds. per min. are common, but the stroboscope provides visibility up to 475 yds. per min. without blurring. A special control system has been developed whereby the lamp is flashed for 30 micro-seconds or less, per flash, and permits the pattern to stand still and be clearly observed.

In the automotive industry, considerable has been written aout the use of infra-red light for drying paint rapidly and uniformly on automobiles.

The a'ert finishing industry has been investigating this problem in hopes that similar use of the infra-red lamp may be applied to cloth drying.

A carefuly analysis of this system has been carried on, and it has been found to be expensive for complete drying, but if the cloth is partially dried by the conventional method of dry cans the infra-red lamps would make an ideal Vernier control to dry cloth to a specific per cent of moisture.

There has also been developed what is termed a speed-variator equipment for operating individual units in the finishing plant at variable speed. This equipment operates from an alternating-current source of supply and consists of a d-c motor which is supplied with an adjustable-voltage source of power, and the necessary control, and will provide speed ranges up to 16 to 1 in capacities up to 30 h.p.

It is also possible to provide these speed-variator units

with dynamic braking so that rapid deceleration can be obtained on the machines being driven by the d-c motor.

As its name implies, the weft straightener is a device for assuring the straightness of cloth as it comes over the tenter frame. Textile men know how important it is that the lengthwise and crosswise threads be perpendicular to each other in finished cloth. Before the electric weft straightener was used, straightness was controlled by an operator who watched the cloth pass through the machine.

If he were expert, he might detect skew at cloth speeds up to 30 yards per minute, but the results were always subject to variation. Fatigue or preoccupation on other assignments resulted in thousands of yards of poor-grade cloth caused by improper checking.

The photo-electric weft-straightening control assures straightness in fine as well as in coarse cloth, up to 140 yards per minute. It is applicable to all makes of tenters, and hence could be advantageously used in nearly every mill in the country.

The equipment comprises (1) two scanning mechanisms with phototubes which "see" the passing threads in the cloth; (2) a control unit to compare these "observations;" and (3) a motor with suitable switches to operate the straightener. Straightening is accomplished by accelerating one tenter chain with respect to the other to secure a perpendicular relationship between weft and warp threads.

The phototubes in the scanning mechanisms "see" the threads in the moving cloth, and the control units compare the "observations." When the observations on each side are equal, the cloth is straight. When the weft threads are skewed, one scanner sees more threads than the other, and a relay operates to start the straightener and restore straightness.

Mills are paying increasing attention to the removal of both skew and bow from finished goods. In addition to many previous successful installations of automatic weft straighteners, the past two years have witnessed the first successful installation of automatic apparatus for bow correction.

Automatic control of these features enables the finisher to deliver cloth practically as straight as when it was woven.

Many other devices too numerous to mention have been developed and put into successful operation in the textile industry and daily electrical manufacturers are receiving inquiries for special motors and control to do some specific job which cannot be done by other means. The progress which has been made so far indicates that in a few years additional strides and improvements will be made in the electrification of all branches of the industry to a degree which will make the present methods seem almost as obsolete as those which we have been referred to as having occurred some 30 years ago. Thus, instead of being at a point of saturation, the industry is really entering new and unheard of fields which will produce greater benefits to it and to the communities that consume its products.

## High Speed Slashing

(*Continued from Page 86*)

possible in the conventional slasher is that existing at a single point: viz., the nip of the first squeeze roll.

The stretch control, by means of change gears, can be set to produce and maintain a given amount of stretch, generally about 1½ to 2¼%.

### Control System for High-Speed Slasher

Complete instrumentation for this High-Speed Slasher includes: measurement and control of moisture content or per cent regain—cylinder pressure—size box temperature and level.

Recording and controlling instruments for the above variables do to some extent operate independently of each other. It should be borne in mind, however, their overall usage is co-ordinated into a unified system which regulates the variables and enables the slasher to operate efficiently and economically.

Instruments for moisture content or per cent regain consist of four units:

(1) The detector roll which touches the sized warp and forms the first contact of the electrical circuit.

(2) The cabinet where the moisture content is recorded and the electrical control contacts are made.

(3) The interrupter which governs the variable-speed drive.

(4) The variable-speed drive which actually controls the warp speed.

Instruments for cylinder pressure control hold the cylinder pressure constant and supplement the moisture content recording controllers by stabilizing drying conditions so that stopping, starting, line pressure variations, etc., are minimized. Pressure variations seldom exceed ±¼ lb. This equipment consists of two recording pressure gauges and diaphragm valve units, one of which controls cylinders 1 and 2, and the other controls cylinders 3 and 4.

Instruments for size box temperature control hold the

size box temperature constant by regulating the admission of steam into the boxes. Each box is equipped with an air-operated temperature recorder controller and diaphragm steam valve. Temperature variations do not normally exceed ±2° F.

Instruments for size box level control: Since size is a conductor of electricity, it becomes a simple matter to control its level. When the size touches the electrode a circuit is established and a relay unit closes a solenoid valve in the air line of a diaphragm-operated size valve. This stops the flow of size until the level drops low enough to open the circuit. The reverse action then takes place, and size is added to the box. By means of this system, size level is held to within ±⅛", thereby insuring continuous uniformity of warp immersion.

### Moisture Content Control System

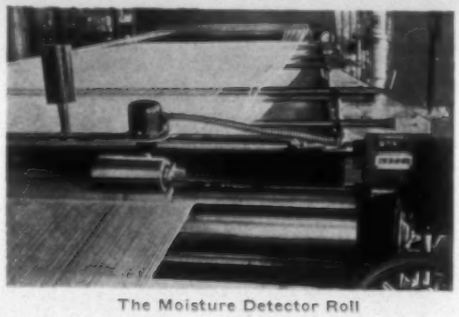
The first function of this system is to measure moisture content of the warp after it has gone through the slashing operation. Tests have shown slashed material is a conductor of electrical resistance, and its resistance depends on the moisture content.

The instrument records the moisture content by measuring the electrical resistance between a small detector roll mounted above the yarn and the back press roll beneath it; per cent regain of the warp is thus measured just before the yarn is wound on the beam.

A cable connects the detector roll to the recording controller in a cabinet, and a very small current flows through the yarn and is measured by the same circuit.

The recording controller, housed in the cabinet, not only makes a continuous chart record of per cent regain, but also actuates electric circuits which ultimately govern the slasher speed. To operate the instrument it is merely necessary to set the control index at the desired regain value, and the instrument automatically takes care of the controlling from that point.

In applying this speed control system to a slasher, a variable-speed transmission unit is required. The instrument through the interrupter changes the speed either in minute amounts or larger amounts, depending on the variation of yarn moisture.



The Moisture Detector Roll

Stop and slow-motion periods in operation are effectively compensated for because the timer or interrupter is tied in directly with the slasher speed. Push-button control stations mounted in the cabinets are to allow operators to modify speeds when changing sets or otherwise.

Moisture regains can be measured to within ± 1/10 of 1% and controlled to within ±½ of 1%.

The regain in yarns delivered by slashers is dependent on many factors, among which are speeds, temperature of cylinders, temperature of size, size box level, tension, fan belt slip, exhaust fan slip, atmospheric temperature, humidity, and draft. Some of these factors may be controlled to a constant value, but most of them are uncontrollable in a practical sense. Extensive experiments indicate it is not reasonable to expect the control of any one or any small group to produce constant regains.

Since speed is the factor which has the greatest effect and is also the variable with the greatest range, it is at once apparent this becomes the ideal method for controlling moisture content.

While it is possible to operate a slasher without a suitable controlling system, it is difficult to maintain high production and quality without adequate instrumental control.

### Size Box Temperature and Level Control System

Automatic control of size box level is the logical means of insuring uniform time of contact of the yarn with the sizing solution.

The size box level control is a simple, inexpensive method of maintaining a constant level in the size box—with minimum differential. Foaming of size solution and changes in atmospheric conditions do not affect sensitivity of the size ox level control system. The size is always held at the right level, assuring correct saturation and uniform coating of the filaments.

The size box level group consists of an electrode through which the circuit passes as the size level touches it, a relay, and the electro-pneumatic relay with a ½" bronze body, bronze trim, screwed end, air to open size valve.

One of these is needed for each size box; the relay units are mounted on the rear of the panel. To change the level, it is merely necessary to loosen the thumb net at the electrode, and adjust it to its proper height.

The lever control operates as follows: A low-voltage electrode is placed in the side of the box at the desired size level. The size solution is a good conductor of electricity and when it is at the proper height, the electrode is submerged and a circuit is completed through the liquid to the electrode. This energizes the coil of a relay connected to the electrode. When the level falls, this curcuit is broken, and the relay drops out. This causes the small solenoid valve to open and admit air to the diaphragm control valve in the size supply line. This valve opens and allows size to flow until the proper level is reached. As soon as the level again reaches the electrode, the size supply valve closes off. The operation is so rapid that no change in size level can be noted by an observer. It does not give oscillations in size level such as are common in other systems and is not affected by air temperature changes. If desired, a signal light can be furnished to indicate that the size is held at the desired level.

The size-level control instrument consists of a low-voltage electrode placed at the level at which the size must be maintained. As long as the electrode is submerged, the flow of current between its terminals energizes a relay which in turn controls a solenoid connected to the dia-

phragm valve in the size-supply line and keeps it closed. As soon as the size falls below the predetermined level, the circuit is broken, and the solenoid allows the valve to open, thus permitting size to flow in.

The action of this control is so sensitive that no change in the level of the level of the size is perceptible.

In addition signal lights are used to indicate the operation of this system.

### The Creel

To attain the highest efficiency, and to keep the slasher in operation without losing too much time when changing sets, a magazine creel is used. This assembly consists of two identical creels, mounted on trucks, which in turn run on metal tracks. By sliding the empty creel to one side, the full creel, with the ends all counted off in bunts according to the count of the reed and the number of ends per dent, is pushed into position behind the size box. The ends are quickly tied on, and the warp run over. Then the ends reach the front of the slasher, the laying of the warp is quickly completed.

Since this new type of slasher runs at speeds varying from 40 to 85 per minute, brakes are used to prevent the overrunning of the section beams, which run with little or no restraint while the slasher is in operation.

These brakes are actuated by an air cylinder whose valves are controlled by the action of the controls used to operate the slasher. The air cylinder contains a piston, which is directly connected to the rod which works the linkage connected to the brake rope at every beam.

The spindles of the beams run in anti-friction bearings.

### Advantages of the High-Speed Slasher With Moisture Control and Squeeze-Roll Loading

In the Lockwood Company Mills, of Waterville, Me., where this Model C Slasher has been in operation, the following advantages have been noted:

1. A large increase in production per machine, with corresponding decrease in cost.

2. The regain in the warp is held within very close limits by a precise control of the yarn speed over the cylinders.

3. A visual, permanent record of the moisture content of every beam from beginning to end.

4. Elimination of damage to the yarn by either overdrying, breakdown of the sizing mixture, or other fibre damage.

5. The more even application of the size, its better penetration, and the efficent removal of the surface surplus results in a saving of size materials, and the reduction or shedding in the weave room.

6. Better drying removes the danger from mildew and other fungus growths.

7. There is a definite saving in steam per pound of yarn dried.

8. There seems to be a definite increase in weave room efficiency from these better-sized warps.

## Fluorescent Fits the Weave Shed

(*Continued from Page 86*)

which occur on a rayon warp under the usual incandescent lighting can be entirely eliminated with the fluorescent system. These illustrations do not represent selected poor and good examples, as a glance of Figures 1 and 2 will indicate.

The front or weave side of looms are shown under the incandescent and fluorescent systems in Figures 5 and 6, respectively. It is here that the weaver's head and shoulders cast objectionable shadows as he leans over to inspect work under the incandescent system. While the difference is not pronounced in the photographs, better shadow conditions under the lay can be noticed in Figure 6.

The only requirement for designing a fluorescent system, such as the one illustrated, is a thorough appreciation of what correctly made fluorescent equipment will do, as well as an understanding of the characteristics of the visual task. With reflectors which extend from the front edge to the back edge of each loom an even distribution of light is insured with a mounting height of between 9 and 10 feet. This lower-than-usual height is possible only when units are spaced over each loom approximately 8 feet on centers and results in footcandle levels in the order of 30.

## Cotton Consumption in February Increases To 793,626 Bales

Washington.—Cotton consumption during February totaled 793,626 bales compared with 661,771 bales in the same month last year, according to preliminary statistics made public by the Census Bureau, Department of Commerce.

Consumption for the seven months ending with February, this year, totaled 5,220,917 bales compared with 4,703,707 bales in the same period a year ago. Cotton on hand in consuming establishments with the close of business in February amounted to 1,905,413 bales compared with 1,700,394 bales in the same period last year and in public storage and in compresses for the two periods there was a total of 14,038,917 bales and 12,176,733 bales, respectively.

Of the total consumption in February of this year, 674,204 bales were used in the cotton-growing States, 94,227 in the New England States, and 25,195 bales in all other States. Linters consumed in February, this year, totaled 106,937 bales compared with 86,161 bales in the same month last year.

Exports in February amounted to 61,000 bales valued at $3,321,000 compared with 56,000 bales valued at $3,100,000 in January and 747,000 bales valued at $43,408,000 in February, 1940, according to an analysis of the export statistics by the Department of Commerce.

Exports for the seven months, August, 1940, to February, 1941, totaled 725,000 bales valued at $39,513,000 compared with 4,917,000 bales valued at $269,122,000 for the corresponding seven months of 1939-1940, a decline of 4,192,000 bales, or 85 per cent in quantity, and $229,609,000, or 85 per cent in value.

## Thirty Years Ago There Was No Automatic Spooling or High Speed Warping

(*Continued from Page 83*)

The creeling of old style warpers was a slow process, as well as an expensive one. It was a common sight to see as many as four creel girls working in the same creel, the object being to reduce the standing time of the warper.

To Barber-Colman Co. belongs the credit of building the first real high speed warper ever operated in a mill. This warper ran 500 yards per minute and was installed in a mill back in 1917, long before anyone else ever dreamed a warper could be operated at over 80 or 100 yards per minute. The introduction of this high speed warper offered many advantages such as flexibility, permitting the warping of a wide range of yarns and number of ends without loss of production, and without additional labor.

In building this high speed warper, the problem was approached in a new way. In both the automatic spooler and in the high speed warper, an attempt was made to relieve the yarn of practically all tension, and then by doing the unusual thing of winding and warping at very high speeds, to bring about the application of the natural law of air friction, which of course is uniform anywhere at any time.

From the very beginning of investigations into the possibilities of yarn winding and warping at high speed, the importance of two things was recognized, these being "low tension" and "uniformity of tension." By the use of a tensometer, an instrument which records the tension of running threads in fractions of ounces, it was found that the tension on threads running in a high speed warper at from 500 to 900 yards per minute, would register between 3/16 oz. to ¼ oz. per running thread. This uniformity of tension results in a section beam with a smooth surface. A set of such beams in a slasher gives loom beams on which all the threads are wound at a low as well as uniform tension. Due to the fact that the beams are warped at such low tension, considerably more life and elasticity which has been spun into the yarn is retained by the warp ends. which is very beneficial at the loom.

Several years ago the super-speed warper with overend creel was introduced to the cotton manufacturing industry. This warper has many characteristics similar to its predecessor, the high speed warper, but also has a number of improvements. The super-speed warper operates at a warping speed of 900 yards per minute and takes the yarn off the cheese overend. This super-speed warper is very flexible in that it is easy to change over from count to count or from color to color. With this warper no loss of time occurs when changing from count to count or from color to color.

The increased warping speed has naturally resulted in a reduction in the number of warpers required for a given mill, as well as a considerable saving in floor space.

A super-speed warper can be equipped with an attachment for warping dye beams and can also be converted into a combination section beam and ball warper.

For mills on coarse counts and desiring big package beams, warpers can be obtained which will take beams up to 72″ between heads, the beam heads ranging from 26″ to 30″ in diameter.

During the last 30 years many improvements have been

made in the processes of spooling and warping cotton yarns, most notable of these being the vast increase in winding and warping speeds at lower and more uniform tensions, as well as a great improvement in the quality of the yarns processed. The improvements made in cotton manufacturing machinery during the last 30 years will certainly compare favorably with changes made to equipment in other lines of industry over the same period of time.

## Slayter and Atkinson Address N. C. State Textile Students on Glass Fibers

Games Slayter, vice-president in charge of research, and F. W. Atkinson, research engineer of the Owens-Corning Fiberglass Corp, visited the Textile School of North Carolina State College recently.

Mr. Atkinson gave the Textile students a very interesting lecture on the manufacture of fabrics from glass and illustrated it with a large display of the products which his company is now making.

As fibrous glass fibers are produced by a mechanical process, the diameters can be controlled and varied in size from 1/7 to 1/50 the size of a human hair. Fibers are considerably longer than cotton or wool fibers and range in length from 8" to 18". While glass fibers will stretch only a very small amount in comparison with those of cotton and wool and do not possess the same degree of flexibility, the individual fibers are stronger than either of these materials of the same size. Glass fibers have a tensile strength comparable to figures given for mild steel. A strong fiber which will not stretch or shrink will answer a long felt need in the industrial textile field.

Although the manufacture of fibrous glass yarns is still in the development stage, much progress has been made. Yarns have been experimentally produced as fine as 1½ grains per yard (one pound being equivalent to 7,000 grains), which corresponds by weight to about No. 6 cotton.

This yarn has been experimentally woven and knit into cloth without the addition of any other fibers. Due to the nature of the material and the accurately controlled method manufacture of the yarns, fabrics made from fibrous glass possess many advantages over both organic and inorganic materials.

It is expected that the yarn type of fibrous glass will find a wide usage in the electrical insulation field. These fibers can be wound or applied to electrical conductors in various ways, having better electrical and mechanical characteristics than other mineral fibers and being able to withstand much higher temperatures than organic fibers. When subjected to the intense heat of an electrical short circuit the glass may melt but will not give off explosive gases. Practical experiments have been made along this line and indicate definite possibilities for extended use in many types of electrical apparatus.

Due to the stability of fibrous glass it should find a wide variety of chemical applications. One interesting test which, incidentally, is an accelerated weathering test for ordinary glass is to determine the stability in a 5% hydrochloric acid solution. Glass fibers are not attacked by such a test. These fibers also will not absorb the fumes of acids or other chemicals. The above facts indicate a wide variety of possible uses such as filters, gaskets, packing materials, diaphragms, acid proof ropes, nets, etc.

## American Viscose Sold To U. S. Group

American Viscose Corp., England's largest single investment in the United States and the greatest producer of rayon in the world, has been sold to a syndicate of investment bankers headed by Morgan Stanley & Co., Inc., and Dillon, Read & Co. Announcement of the sale was made at the Morgan Stanley offices by Sir Edward Peacock, who is now in the United States to sell Britain's direct investments here.

The sale of the huge rayon unit was expected to prove the forerunner of sales of other British-owned companies here to pay for war materials. Recently reports had been circulated that the Lend-Lease Act would permit the British to retain their American holdings, but the sale announced revealed that liquidation has, in fact, gotten under way.

The total purchase price to be paid to the British Government depends upon the amount to be realized on resale by the banking syndicate. Since the distribution here to new stockholders will not take place for at least two months, the figure is not yet determined.

American Viscose was founded 30 years ago by British interests and steadily developed until today it is ranked in the trade as the largest in the world. The captial set up consists of 491,555 shares of $100 par value common stock. There is no indebtedness. An issue of $49,000,000 is listed in the financial manuals as having been authorized but no such stock is outstanding. The balance sheet value of $49,155,500 for the common stock is no criterion as to the actual value of the company's assets, guesses on which range from $100,000,000 to $150,000,000.

The company manufactures but does not weave yarns and staple fibers. It employs about 18,000 workers. It possesses three plants in Pennsylvania, two in West Virginia and three in Virginia. Included in the Virginia plants is one in Front Royal, completed last year, which the trade ranks as the most modern in the industry.

John G. Jackson, chairman of the board, and William C. Appleton, president, as well as other members of the executive staff, are Americans. Samuel A. Salvage, the founder, retired as chairman several months ago. The board of directors, of course, represents Courtaulds, but in recent years there has been a trend toward bringing operating executives into the board.

The underwriting group includes the following, in addition to the syndicate managers: Kuhn, Loeb & Co., Mellon Securities Corp., Lehman Bros., Union Securities Corp., The First Boston Corp., Harriman Ripley & Co., Inc., Smith, Barney & Co., Blyth & Co., Inc., Kidder, Peabody & Co., Clark, Dodge & Co., Dominick & Dominick, Goldman, Sachs & Co., Hemphill, Noyes & Co., Shields & Co., White, Weld & Co.

## Spring Presents Cloth to Britain

Chester, S. C.—Captain Elliott Springs, president of the Springs Cotton Mills, operating three large mills here, two at Fort Mill, one large plant at Lancaster and one at Kershaw, has presented the local unit of Bundles for Britain with a large amount of cloth with which to make hospital supplies to be sent to Britain.

## Long Draft Spinning Simplifies Mill Layout

(*Continued from Page 81*)

descends and has permitted longer traverses with no increase in end breakage.

The result of these improvements has been to materially increase the size of the package produced at the spinning frame resulting in less frequent doffing and the several advantages of greater unbroken lengths in subsequent processes such as weaving and spooling.

Considerable progress has been made in spindle construction in the past thirty years. Blades are made of special alloy steels that possess sufficient stiffness and yet are more resistant to strains, enabling them to carry the heavier packages assigned to them without the necessity of reducing speeds. Bolster cases have been redesigned to provide greater oil capacity, thus reducing the frequency of lubrication.

To meet the demand for better shaped bobbins and special winds to accommodate high-speed winders, builders have been redesigned to operate more smoothly and positively.

The increased use of synthetic fibers of greater staple length has introduced new problems for the spinner. To meet these problems the textile machine shops have been called upon for aid, and they have responded with specially designed double-apron drafting systems, roll stands, back bars, and top rolls to accommodate the longer staples. One thing of great importance in connection with the double-apron method of drafting is its ability to satisfactorily handle mixes containing a range of staple lengths. Mixed staples were the nightmare of spinners thirty years ago, whereas today there appears to be a good possibility that there will be a trend toward this practice.

In general, speeds have been increased along with the improvements already mentioned, and this has been made possibly by mechanical improvements all along the line. There has been a more prolific use of cut gearing and antifriction bearings.

Textile machine shops today maintain extensive research corps constantly engaged in testing new materials, new methods, and new processes. The result of constant research and experimentation, the spinning frame of today stands as a far superior machine to that of thirty years ago. Then it was built primarily for production; today it is designed to be so improved, so efficient, so economical that the savings to be made by operating it will justify its purchase.

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## Alabama Cotton Mill Men to Hold Annual Meeting April 18, 19

Mobile, Ala.—The 1941 annual meeting of the Alabama Cotton Manufacturers' Association will be held here April 18 and 19, at the Hotel Admiral Semmes, according to Dwight M. Wilhelm, secretary.

A committee consisting of H. Arthur Cook, chairman; Homer Carter, Fred Hagen, Comer Jennings and D. H. Morris, Jr., is preparing the details to round out the activities for the two-day convention.

## New Textile Wage Committee

Washington, March 12.—A new industry committee to investigate the economy of the textile industry (cotton, rayon, silk and certain textiles other than wool) and to recommend a minimum wage rate or rates was announced today by Gen. Philip B. Fleming, administrator of the Wage and Hour Division, U. S. Department of Labor.

Lessing Rosenwald of Jenkintown, Pa., former chairman of the board of Sears, Roebuck & Co., was named chairman of the committee. The committee will meet in Washington, April 14.

Except for the addition of one paragraph, the definition of the textile remains the same as that drawn up by the administrator for the first textile industry committee under the Fair Labor Standards Act.

The added paragraph is similar to one included in many of the industrial definitions drawn up since the original textile definition was drafted. It makes clear that clerical, maintenance, shipping and selling occupations come under any eventual wage order. It also provides that where an employee comes under two minimum wage rates in the same workweek, the higher rate applies unless records are kept in accordance with wage and hour regulations designed to meet this situation.

In addition to the chairman, the members of the committee are:

*For the Public*: Barry Bingham, president and publisher *Louisville Courier Journal*, Louisville, Ky.; Arthur Raper, Bureau of Agricultural Economics, U. S. Department of Agriculture, Greensboro, Ga.; Harty D. Wolfe, professor of economics, University of North Carolina, Chapel Hill, N. C.; Col. Ike Ashburn, Texas Agricultural and Mechanical, Collegeville, Tex.; Amy Hewes, professor of economics, Mt. Holyoke College, Mt. Holyoke, Mass.; Malcolm Keir, professor, Dartmouth College, Hanover, N. H.

*For the Employees*: Donald Comer, chairman, Avondale Mills, Sylacauga, Ala.; Charles A. Cannon, president, Cannon Mills, Kannapolis, N. C.; W. Harrison Hightower, president, Aldora Mills, Thomaston, Ga.; Sam H. Swint, president and treasurer, Graniteville Co., Graniteville, S. C.; R. C. Dick, treasurer and general manager, Naumkeag Steam Cotton Co., Salem, Mass.; Allan Barrows, treasurer, Gosnold Mills Corp., New Bedford, Mass.; Henry E. Stehli, president, Stehli & Co., Inc., 1372 Broadway, New York.

*For the Employees*: Emil Rieve, general president, Textile Workers' Union of America (CIO); Edward Doolan, T. W. U. of A.; Elizabeth Nord, T. W. U. of A.; Roy Lawrence, T.W.U. of A., Charlotte, N. C.; Horace White, T. W. U. of A., Greensboro, Ga.; Frank P. Fenton, director of organization, American Federation of Labor, Washington, D. C.; Robert J. Watt, international representative, American Federation of Labor, Washington, D. C.

Any recommendation of the committee will be the subject of an administrative public hearing at which any interested person may appear and testify.

## To Open Shuttle Factory

Hodgenville, Ky.—A shuttle factory will be opened in Hodgenville shortly by Lee and Clyde Goodman.

## Thirty Years of Progress in Loom Manufacturing

(*Continued from Page 102*)

produces a rigid assembly that minimizes vibration.

"The machined loomsides and machined structural steel lengthwise members make a rigid assembly which is perfectly lined and squared. The shafting, though closely fitted, turns freely because the bearings are in perfect alignment—something that was not possible in the old machinery where cast iron lengthwise members were fitted by hand to rough loomsides."

Another manufacturer puts it this way: "This great improvement has been made possible by the steady improvement of the loom and the devices on the loom that have made weaving more and more automatic; and by the better warps and better filling now supplied to the weave room because better looms have made it economically worth while to improve yarn preparation.

"The improvements to the loom have included practically every mechanism on the loom, harness motion, pick motion, drive and brakes, let-off, take-up, many improvements to the battery, etc.

"Loom accessories have kept pace with the loom. Important improvements in shuttles and bobbins have contributed materially to the smoother and more efficient operation of the loom.

"These improvements gradually have eliminated the weaving faults that formerly took the time and attention of the weaver until she or he now has little left to do but to tie in broken ends and watch the matching of the pick on weaves requiring a feeler. The work of filling the batteries is nearly always given to battery hands.

"She had to keep a close watch on all of her looms for many different kinds of weaving defects now automatically taken care of by the loom.

"She had to hurry from one loom to another as they stopped for a broken end; and a broken end in those days required her to turn the loom over, push the shuttle into the left hand box, find the broken end—which took considerable time on the average—tie in the end and start the loom.

"Matching the pick called for a like number of operations.

"Today's 100-loom weaver, because of the greatly reduced number of loom stops, can patrol her set of looms leisurely. When she finds a broken end she has only to pick up the broken end—clearly indicated by an open place in the warp—tie it in and pull on the shipper handle. The loom has stopped with the shuttle in the proper box and everything is ready for immediate starting when the piecing up has been done.

"The operation is equally simple in matching the pick on a Feeler loom."

## Textile Men To Participate in South American Tour

The textile industry will be represented in the group of prominent United States research, industrial and banking executives who will make a "tour of industrial exploration" in March to principal South American nations. This was announced from the New York headquarters of the National Research Council under whose auspices the tour is being conducted.

F. A. Williams, president and treasurer of the Cannon Mills Co., New York; C. B. Rockwell, treasurer of the Collins & Aikman Corp., Bristol, R. I.; M. C. Huntoon, president of the Providence Braid Co., Providence, R. I., and H. H. Schell, president of Shelton Looms, New York, are among those who will participate on the trip which will take place in Colombia, Peru, Chile, Argentina, Uruguay and Brazil.

The outcome of more than a year's study of the various aspects of such an undertaking, the tour has been arranged to develop practical methods for the exchange of American industrial technology for non-competitive raw materials produced by South American countries.

The invited participants were selected from more than three hundred research administrators, industrial executives and bankers. Co-operation of various departments of the government charged with the responsibility for inter-American relations has been assured.

## All-Southern Textile Cage Players Named

Greenville, S. C.—Seven teams are represented on the all-Southern boys and girls squads named at the conclusion of the 21st, annual Southern Textile tournament here March 8th.

The referees of the tournament voted for the teams.

All-Southern Boys Team:

F—Bert Hill, Southern Bleachery.

F—Harry Anderson, Dixie Aces.

C—Hugh Hampton, Hanes Hosiery.

G—C. R. McIntosh, Peerless Cotton.

G—Grayson Davis, Dixie Aces.

All-Southern Girls Team:

F—Leva Smith, Chatham.

F—Babe Poole, Chatham.

F—Beulah Brown, Enka.

G—Gussie Couch, Enka.

G—Jennie Sherrill, Chatham.

G—Nellie Keeton, Dixie Flashes.

## Rayon Fabrics Reported Used At 18 Yards Per Person in 1940

"The rayon consumed in America last year amounted to the equivalent of 18 yards of dress fabric for every man, woman and child," declared John A. Spooner, advertising manager of American Viscose Corp., at a textile clinic for members of the New York Advertising and Selling Course, on February 24th. Mr. Spooner stressed the rapid growth of the U. S. rayon industry. "Ten years ago," he said, "the figure was less than four yards per person."

He outlined the steps taken to establish public confidence in rayon fabrics, citing the Crown Quality Control Plan, which has operated since 1930, as an example of resultful work in this field. "Under this plan," he said, "many fabrics containing rayon are laboratory tested for consumer satisfaction. Garments made from those fabrics which measure up to minimum specifications are labeled 'Crown Tested,' as a useful guide to the purchaser. More than 41 million of these identifying labels were used on quality rayon merchandise last year," he said.

## Textile Patents in the Carolinas

Patents recently issued to Carolinians relate to a variety of subjects according to Eaton & Brown, patent attorneys of Charlotte, N. C.

W. F. Penland, of Lexington, N. C., was awarded a patent on an attachment for a loom. In looms using plied yarns for warp, it often happens that some, but not all, of the plies of a strand will become broken, and the strand therefore will not fall downward to let the stop motion operate, thus producing defective cloth. Mr. Penland mounts a rotary brush in contact with the warp so that the brush will engage broken plies and wind the strand around the brush to break the defective strand and insure that the stop motion will operate.

Robert O. Huffman, G. W. Shuford and B. W. Childers, of Drexel, were awarded a patent on a special shearing and stripping apparatus for hosiery which is assigned to Drexel Knitting Mills, of Drexel, N. C. It comprises a rotary form on which the socks are placed, wrong side out, with clippers mounted in each side of the path of travel of the forms for shearing the projecting strands of yarn which are produced on some types of knitting, such as double sole work, mock wrap and the like.

## Clemson Textile Seniors Hear Mr. Verity

Ben Verity, of Carbic Color and Chemical Co., gave a very interesting talk to three sections of Clemson textile students on February 27th. His talk was chiefly on the newer fast dvestuffs such as indigosols and his discussion was full of experiences from his many years of plant experience with American Printing Co. and as technical representative for Carbic Color and Chemical Co.

## Army Bids Opened On 3,789,000 Yards Of Woolen Cloth

Philadelphia.—Army bids on a total of 3,789,000 yards of olive drab woolen cloth were opened here under Invitation 508, including (1-a to 2-d) 3,200,000 yards of 32-ounce melton overcoating; (3-a to 4-d) 164,000 yards of 26-ounce doeskin cloth; and (5-a to 5-d) 424,000 yards of 20-ounce suiting. Delivery of the doeskin cloth and the suiting are to be complete in 150 days and of the overcoating in 260 days.

## Kendall Co.'s Net Profit For Year Totals $869,834

Boston.—A net profit of $869,834 after depreciation, debenture interest and Federal and foreign income taxes, was reported by the Kendall Co. for the year ended December 28, 1940. This compares with a net profit of $934,043 for the previous year.

Net profit before the above deductions was listed at $2,129,548. Current assets are $12,225,400 and current liabilities $3,752,073 provisions for dividends on Series A preferred stock, regular, were $183,639, and on participating were $27,810.

## Celanese Lets Contract For Its Celco Addition

Contract for the additional production and service buildings of Celanese Corp. of America at Celco, near Pearisburg, Va., have been awarded to George F. Hazelwood Co., Cumberland, Md. The estimated cost is about $1,500,000.

## NOPCO EXPANDS AGAIN

Manufacturing operations will begin soon at the new, two-story addition to the Cedartown, Ga., plant of the National Oil Products Co., of Harrison, N. J., it was announced by Charles P. Gulick, president and chairman of the board.

"Construction work on this important expansion of the manufacturing and warehouse facilities of the Cedartown plant is being rushed as much as possible," Mr. Gulick said. "Installation of machinery has already begun and the new plant will be all set to function within a month."

The new building, which is 73 feet by 96 feet, is being constructed by Wright and Lopez, Cedartown contractors, as an addition to the Metasap division of the National Oil Products Co. After completion, this expansion program will serve to more fully concentrate the company's manufacturing facilities for metallic soaps and allied products in Cedartown, according to Walter Kastner, resident agent at the Georgia plant.

The growth of the Cedartown plant of NOPCO has been steady since operations were begun in 1937. In 1938, a first unit of the metallic soap plant was transferred to Cedartown from Chicago to be added to the capacity of the unit originally opened there. While no definite announcement has been made, it is understood that further expansions are planned for the immediate future.

There will be no acute shortage of trained workers when the new plant is opened, Mr. Kastner stated. A trained crew has been picked to take over as soon as the equipment is installed. Approximately 100 trained workers are on the company's Cedartown payroll at present.

## Vat Dyes On Wool Content Fabric

Du Pont spun rayon combined with wool is being used in two new fabrics distinguished by an unusual dyeing technique just announced by Sea Island Mills, Inc., 53 Worth Street, New York City.

The fabrics are a flannel and a gabardine. The manufacturer states that this is the first time that vat dyes have been successfully used on wool content fabrics and that their new technique has succeeded in not only uniformly vat dyeing a rayon and virgin wool blend, but in producing fine fabrics that have passed all color fastness tests by the Better Fabrics Testing Bureau.

In regard to the tests, the manufacturer states that the flannel passed 150-hour fadeometer tests which are the equivalent of four complete seasons' average wear in the sun.

Washing tests, they state, at 20 degrees Fahrenheit resulted in practically no color change from original samples. Shrinkage, they say, is not over 2 per cent residual.

In the case of the gabardine, it is stated that the rayon and virgin wool blends passed all tests with "good" and "excellent" rating. These tests, it is said, were equal to those required for venetian blind tapes and awning tests where severest conditions are encountered.

Du Pont vat dyes have been used in dyeing these fabrics.

It is expected that the new materials will be seen during summer, 1941, in men's and boys' sportswear, women's sports and tailored wear and children's clothes. The new fabrics come in a complete color range.

## Marshall Field Host To South Americans

Leaksville, N. C.—Recently the Tri-Cities were host to a group of South Americans who were attending the Inter-American Institute in progress at Chapel Hill. Prof. E. J. Woodhouse, of the University of North Carolina, acted as leader of the group. The visitors attended a joint luncheon meeting of the Leaksville-Spray Lions Club, the Leaksville-Spray Rotary Club and the Draper Rotary Club at the Draper Y. M. C. A. During the evening the group attended a meeting of the Carolina Co-operative Council, to which various other clubs in the community were invited. The visitors also made a tour of several of the Marshall Field & Co. textile mills.

In the group besides Dr. Woodhouse were Misses Margarita Neves and Katherine Paton, from Uruguay; Augusto Villoran, Santiago E. Antunez de Mayola, Edwin Rey, from Peru; George Shneider and Reynaldo Klimpel, from Chile.

W. B. Weaver, secretary of the Carolina Co-operative Council, acted as host to the group during the day and he also presided at the joint meeting of the civic clubs during the luncheon. At the meeting of the Carolina Co-operative Council J. Frank Wilson, president of the Council and production manager of the Marshall Field & Co. mills, presided. At both meetings members of the South American group made short talks.

## Iselin-Jefferson Selling for J. C. Sanders Mill

Iselin-Jefferson Co. has been appointed selling agent for the J. C. Sanders Cotton Mill Co., of Mobile, Ala.

## G. E. Shows Big Business Increase

New York.—Preliminary results of General Electric Co.'s operations for the year 1940 were announced February 28th by President Charles E. Wilson following a meeting of the board of directors of the company.

Net sales billed amounted to $411,938,000, compared with $304,680,000 for 1939, an increase of 35 per cent. As announced in January, orders received in 1940 amounted to $654,190,000, a record high figure, and were equivalent to an increase of 81 per cent over the orders received in 1939.

Net income for the year 1940, after provision for all charges, amounted to $56,241,000, and was equivalent to $1.95 a share of common stock, compared with $1.43 a share in 1939, an increase of 36 per cent. Cash dividends of $1.85 a share were declared and paid in 1940, compared with $1.40 a share in 1939.

The provision for total 1940 taxes was $54,943,000, or more than was ever previously required for such purposes and represented an increase of $33,930,000, or 162 per cent, over the corresponding amount for 1939.

On December 31, 1940, there were 214,140 stockholders, compared with 209,914 a year earlier.

The annual report for 1940 will be mailed to stockholders in the latter part of March.

## Steel Heddle To Absorb Southern Shuttles, Inc.

Greenville, S. C.—A special meeting of Southern Shuttles, Inc., will be held in Greenville April 2nd to take action on a proposed contract, by which the assets of the corporation will be acquired by the Steel Heddle Mfg. Co.

The Heddle concern would assume the liabilities of the shuttles concern, which would subsequently be dissolved, according to Louis P. Batson, president.

## Tifton Mills Get Employee Group Life Insurance Policy

Tifton, Ga.—The Tifton Cotton Mills has acquired a group life insurance policy involving a total of $148,500 for the protection of 231 employees.

The policy allots insurance in amounts ranging from $600 to $1,500 to each worker, according to rank. Premiums will be paid in part by the workers themselves and the remainder of the expense will be assumed by the employing company, the policy having been issued on the contributory basis.

## The Last Arrival

If we had received notice of the following exhibitor more than three hours later it would not have been possible to include it in this issue. However, the announcement got under the press deadline, so we list The Celetex Corp., Atlanta, Ga., as exhibiting in Booth 317-B at the Southern Textile Exposition.

## Use of Plastics and Chemicals in Apparel Reported Increasing

New York.—The progress in the use of plastics in apparel was cited by two speakers at the meeting of the New York Section of the American Chemical Society at the Hotel Pennsylvania. In addition to noting the utilization of the non-textile forms of plastics, they reported the progress of these same plastics in the forms of yarns and staple fiber.

Speakers at the meeting were Howard S. Bunn, manager of the plastics division of Carbide & Carbon Chemical Corp., New York; James F. Walsh, of Tuckahoe, N. Y., research consultant of the Celanese Corp. of America, and Wesley R. Thompson, technical director of the Catalin Corp. of America, Fords, N. J.

"Thin plastic fabrics of the new vinyl elastomere are being fabricated into waterproof garments, such as raincoats, rain hats, golf jackets, smocks, aprons, smockettes, and make-up capes where the fabrics' adaptability to styling, their lightness in weight, low cost, durability, and other properties which afford protection suit them admirably for the applications," Mr. Bunn stated.

"Many other apparel uses, such as hose supporters, garter waists, lingerie straps, and shower caps are being manufactured and many more are contemplated, some as actual apparel, others as supplementary items, such as wallets, cosmetic bags, and mothproof bags for storing clothes.

"The elastomeric material is made in thicknesses from 0.003 inch up to 0.085 inch in various widths and essentially continuous lengths. It is strong and tough, yet elastic, having a 'lazy' return when stretched. It is durable, resilient, having seven times the tear resistance of comparable materials, and is easily washable.

"Thicker sheetings of this material enter the manufacture of women's shoes, for both the street type as well as highly styled evening slippers. These sheetings are found in glove trim, belts, wrist watch straps, hand bags, hat trim and other trim for women's dress ensembles. Scuffproof tips for children's shoes, and men's belts, suspenders, watch straps, key and watch chains, and sports shoes also employ the plastic material.

Discussing "Cellulose Plastics in Wearing Apparel," Mr. Walsh pointed out that these plastics, "possessing in more or less degree incomparable commercially desirable inherent characteristics," are continuing to expand their fields of use.

"Cellulose plastics, serving effectively peacetime wearing apparel needs, will just as effectively serve in required modified forms our defense and emergency requirements," Mr. Walsh asserted.

"Relatively low in cost and capable of economical fabrication, cellulose plastics are of wide range of color ability and configuration, and have facility of cementing, adaptability to machining or molding by forming, blowing, pressure or injection molding, transparency, toughness, water resistance, and stability under conditions of normal service.

"The total volume shows 24,905,586 pounds of cellulose plastics used in wearing apparel. On this basis, each of us uses an average of about one-fifth of a pound of cellulose plastic, in some form or another, in wearing apparel during a year.

# Cotton Goods Markets

New York.—Worth Street markets were quick to react to the passage of the lend-lease bill and other recent developments which apparently point to higher prices and continued heavy production. As buyers viewed the situation, everything tended to force prices upward and there was nothing in sight to cause a reaction in values. The appointment of a committee to recommend a new minimum wage for textiles was also considered and a number of merchants pointed out that the establishment of a new pay scale at this time would make the margin on many contracts now on mill books look quite thin. Merchants continued their attempts to impose some sort of controls on marketing but were not very successful and finally a number announced that they had decided to withdraw from the market for the time being. The market is now strongly leaning to the belief that the best policy to pursue is to continue to produce supplies in large amounts on the ground that heavy production is a better stabilizer of prices and marketing than any other known device. Meanwhile, every indication pointed to a continuation of buying and steadily rising prices. With raw cotton values rising and other materials more expensive, the rise in mill costs during the week ending March 14th was almost on a par with the advance in prices.

While gray goods prices have risen considerably from the lows of last August, prices are still moderate in comparison with values on most lines of manufactured goods. Mills are making money but find that wage and other costs are keeping pace with the widening of manufacturing margins. Competition for skilled help has led to the granting of numerous wage increases and to a certain deterioration of production. When jobs were scarce, workers put their all into the tasks assigned them. With work plentiful, mill hands are no longer under this compulsion with the result that a number of plants find that production is from 10 to 12 per cent under what it should be.

While there has been considerable discussion in the market regarding the imposition of price controls, the general belief is that the most effective way of stabilizng prices and keeping goods flowing at a rapid rate through distributive channels is to maintain the present high rate of production.

A number of mills have not only added third shifts but there are a number of plants which have resorted to Saturday operations, thus putting an end to the week-end blackout about which defense officials have been complaining.

# Cotton Yarn Markets

Philadelphia.—All types of cotton yarns have advanced in price during the past several days. This is apt to result in rumors of profiteering by those who see only the price of the finished product and do not consider the rising costs that the manufacturer must deal with.

One newspaper report, dated March 11th, stated, "In the largest volume of trading since the war boom of September, 1939, the New York cotton market moved to new high levels for the season yesterday when May sold at 10.78 cents and March to 10.78.

"There were reports that domestic mills bought fully 25,000 bales of futures, or fixed the price on that many bales through leading spot firms and commission houses. Bombay houses also bought about 15,000 bales of new crop months.

"The rise was inspired by the passage of the lend-lease bill by the Senate. This measure implies that surplus commodities, such as cotton, might be shipped abroad."

When the above facts are taken into consideration, together with the fact that mills are now operating at increased labor costs it is not hard to see the reason for the increases in yarn prices. Wages have not shown any considerable rise throughout the industry, but there has been a definite rise in labor costs due to the fact that much of the help must have additional training before they can operate the jobs well. Most of the good workers have been working all the time, and the workers who have been added to take care of the increased business resulting from the defense program are the less experienced ones who could not measure up to qualifications heretofore.

Movement in cotton yarns during the week ending March 14th was probably the most active since the rush buying period last fall. A definite advance in quotations was registered in principal counts of carded knitting and weaving yarns, while combed yarns were up sharply and a very substantial mark-up became effective in mercerized yarns. For some months veteran yarn distributors expected such a condition, but not before June. In the past month, some of the larger distributors have been urging customers to cover completely to mid-summer, rather than to remain open on part of this coverage and attempt partial protection for an additional three months.

Sale yarn users until lately remained ultra-conservative and it took the recent bulge in cotton to bring a good many of them to the point of seriously considering the delivery outlook.

# Classified Department



FOR SALE

8—Frames Saco-Lowell spinning, 1925 Model, 208 spindles each, 2¾" gauge, 1⅞" ring, tape drive, 8" cylinders, screw neck front rolls, McMullan spindle.

Address "Frames,"
Care Textile Bulletin.

MISSING!

W. L. Garner, age 19. Former weaver at Aragon, Ga. Disappeared January 27th. Description: About 6 ft. tall, weight, 185 lbs., grey eyes, black hair. Was wearing blue overalls, blue sweater, tan leather coat, black cap. Mother ill and anxious to communicate with him. Anyone knowing his whereabouts, please communicate with Mrs. B. J. Garner, P. O. Box 205, Aragon, Ga.



SUPERINTENDENT, now employed, wants position. Practical experience throughout mill, including overseer carding, spinning, twisting, warping and winding both carded and combed. I. C. S. graduate, specialized in rebuilding and reclaiming old mills, have held present job nine years. Active church worker, don't drink. Can furnish excellent reference. Address "Superintendent," care Textile Bulletin.

POSITION WANTED—As Overseer of Spinning. I. C. S. graduate. Age 30, married; 2 children. High draft number. 13 years' mill experience, past three as assistant overseer. Address "A. B. T.," care Textile Bulletin.

WANTED—Position as Overseer Carding or Spinning. 15 years' experience. Familiar with all various types of drafting, both carding and spinning. Best of references. Good manager and organizer of help for production at minimum cost. Interviews requested without obligations. Address "Production," care Textile Bulletin.

WANTED—Position as Overseer of Weaving. Experience—4 years as head fixer, 5 years as assistant overseer in room with over 1,100 looms, making denim and other 3.00 yd. goods. Have worked with present employer for 14 years. 36 years old, married, sober. Desire change for promotion only. A-1 reference from present employer. Inquiries invited. Prefer location in Virginia or the Carolinas. Address "Overseer," care Textile Bulletin.

WANTED—Job as section man or second hand in spinning room, 16 years' experience; graduate of Junior College and I. C. S.; 36 years old, married, strictly sober. Go anywhere. Address "BB," care Textile Bulletin.

SALESMAN WANTED—For rapid turnover transmission item. Straight commission. No objection to handling with non-competitive lines. Advise present territory and lines handled. Address Transmission, care Textile Bulletin.

WANTED—Position as overseer weaving, 35 years' experience on colored and fancy work. At present night overseer and prefer daytime job. Married, good manager of help. References from present employer. Address "M. N. J.," care Textile Bulletin.

FOR SALE

5-can Johnson Slasher, 52" cylinders, Reeves drive, individual motor, temperature indicator, size pan control, in first-class condition. A bargain, as we need the floor space.

Address "Bargain,"
Care Textile Bulletin.

## Report Mexico Will Buy Its Rayon From Japan

Tokyo.—An agreement has been signed with Mexico for the importation of Japanese rayon yarns by the textile industry in that country, according to advices from Japanese sources in Mexico City.

Commenting upon this agreement, Domei, official Japanese news agency, said Japanese traders believe that it was a definite indication of increased dependence of the world market upon Japan for rayon supplies.

# Southern Sources of Supply

## For Equipment, Parts, Material, Service

*Following are the addresses of Southern plants, warehouses, offices, and representatives of manufacturers of textile equipment and supplies who advertise regularly in TEXTILE BULLETIN. We realize that operating executives are frequently in urgent need of information, service, equipment, parts and materials, and believe this guide will prove of real value to our subscribers.*

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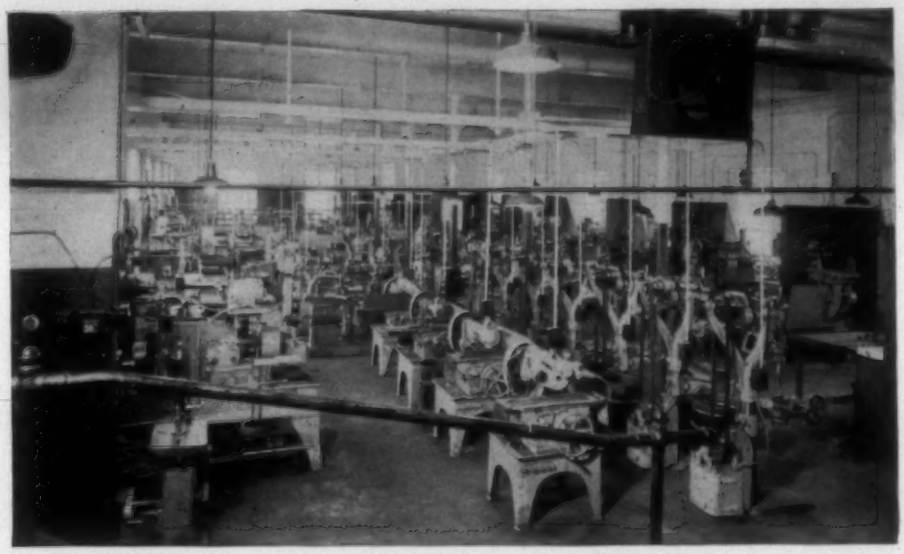

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